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10 APRIL 1990



# ***JPRS Report***

## **Environmental Issues**

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# Environmental Issues

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## BULGARIA

### Sofia Protesters Rally Against Pollution

AU2703182190 Sofia BTA in English  
1653 GMT 27 Mar 90

[Text] Sofia, March 27 (BTA)—Carrying black flags and chanting "We want life" and "Save our children", people living near a non-ferrous metal works and a chemical plant not far from Plovdiv today staged a rally in front of the National Assembly building here. Representatives of the protestors, accompanied by Mr Petur Slabakov, chairman of the Ecoglasnost Independent Association, handed a declaration insisting that the environmental pollution problem in that part of the country be considered at the session which the National Assembly will open tomorrow.

According to the Coordinating Council for Environmental Protection in the village of Kuklen near Plovdiv, the people find the National Assembly and the Council of Ministers decisions on the matter unsatisfactory. People believe that all hazardous productions should be halted and that screenings should be carried out at least of the children who are now susceptible to allergy, anemia and even mental retardation. "The situation in the area is explosive indeed, and patience is wearing thin," says Dr Matushka Mitova of the village. "If the plants stop, at least the air will be cleaned up as aerosols are the main vehicle of pollution. Coping with soil contamination represents a still more daunting problem because it will take scores of years and special remedial action."

Mr Angel Dimitrov, deputy chairman of the National Assembly, who received the declaration, believes that further time-consuming research is needed before the problem can be finally solved. The multitude reacted strongly to this reply, erupting in chants of "Answer now", "No more waiting", "We've had enough". The National Assembly deputy chairman was compelled to see the protestors in person and to assure them that the matter will be introduced at the session tomorrow.

## GERMAN DEMOCRATIC REPUBLIC

### PDS Commission Head on Environment Policy

90EG0195Z East Berlin NEUES DEUTSCHLAND  
in German 10-11 Feb 90 p 9

[Interview with Helmar Hegewald, head of the Environment Commission of the Party of Democratic Socialism (PDS) by Holger Becker; place and date not given]

[Text] [NEUES DEUTSCHLAND] Comrade Hegewald, the PDS [Party of Democratic Socialism] has recently presented a discussion offer: "For an Environment Worth Living In." If I understand it correctly, this paper is based on two German states in the perspective of a united Europe. Meanwhile, however, Prime Minister Modrow caused surprise with his concept "for Germany,

united fatherland." Could we not leave the contemplation of environmental problems to Herr Toepfer or his successor?

[Hegewald] That is a reasonable question. But it should be stated: We do not want a German Europe but a European Germany. For this reason, environmental policy must and can proceed only on the basis of the European dimension. Under this premise, we should give thought to this: What constructively brings the GDR into the process that can lead to state unity through a contractual association and confederation in accordance with the Modrow plan.

[NEUES DEUTSCHLAND] Do you also mean that with respect to the environment, where we are considered to be among the worst offenders, at least in Europe?

[Hegewald] In view of these facts, it certainly sounds paradoxical but it seems to me that we have the opportunity to introduce something on our own precisely in this area, namely the rudiments of an ecologically oriented way of production and life. The movement in the direction of democracy that began in October and November has this chance. A precondition is that we are now successful in controlling matters politically and legally in such a way that a far-sighted and ecologically founded rational adoption of nature is the basis of stable long-term economic growth. New national economic structures are to be organized in such a way that energy-intensive processes can be reduced and the corresponding enterprises closed down—I am thinking, for example, about the synthetic gas production in Leuna, the replacement of the carbide production or the lowering of cement exports. That extends to the setting of prices that give producers as well as consumers a material interest in the economical use of raw materials, energy, and water. An advantage could also lie in one of our previous disadvantages—the fact that industrialization is not as advanced here as in the FRG.

It is necessary, however, to set the course in the indicated direction now.

[NEUES DEUTSCHLAND] Where, then, should be the start? Give an example.

[Hegewald] At the meeting of the Dresden Regional Assembly recently, I spoke about an urgent measure. If we now shift to the market economy, this will be linked with a substantial development of small and medium-sized industry and of enterprises of the most varied kind of ownership. It is necessary to look into the environmental compatibility of every project in which there is investment. There are already legal regulations for this. They were set forth in GESETZBLATT [law gazette] I/26 from December 1988, but heretofore they have not been applied consistently. But we need structures or institutions that guarantee this environmental compatibility. I see the possibility for this if economic offices are now created for the individual Lander in the course of an administrative reform. For the emerging Land of Saxony, I have proposed that the tasks of this office must

include the appropriate strictly regulated approval procedures. The suggestion was received favorably.

[NEUES DEUTSCHLAND] You mean a barrier to future environmental stresses?

[Hegewald] Exactly. It is a matter of preventive environmental protection. Only in this way can we avoid losing control of this in the territories in the course of the process of rapprochement or unification. In no case should it happen that new diffuse and extensive environmental stresses arise with the investments in the small and middle-class sector. It is apparent in the FRG as well that faulty developments of this kind are difficult to correct. We should not allow them in the first place. Otherwise, an ecologically-oriented market economy remains just empty words.

One must know that the investigation of the environmental compatibility of new investments has not played any role in German-German relations heretofore. It is not dealt with seriously between our Ministry for Environmental Protection and the ministry of Herr Toepfer. Here we rank below the level of developing countries. When firms from the FRG want to invest there, namely, such checks are necessary.

This, however, is a matter of fundamental interests of citizens. For this reason, the central Green Table set up with the environmental minister will take on this task. In my opinion, it is important now, before it is too late, to outline the basic ecological conditions for the planned step-by-step process of the unification of Germany.

[NEUES DEUTSCHLAND] Where did the idea for the Green Table come from?

[Hegewald] It came from a conversation with Pastor Dr. Gensichen, head of the ecclesiastical research home in Wittenberg. He took hold of it and wrote a letter to Hans Modrow, who then induced the Ministry for Environmental Protection to call to this Green Table.

[NEUES DEUTSCHLAND] The big Roundtable also welcomed the idea.

[Hegewald] Not just that. When we were debating about ecological problems there, Herr Boehme as a representative of the SPD [Social Democratic Party], for example, shared our opinion that we must bring such a form of competent articulation of citizens' interests, as represented by the Green Table, into the process of rapprochement of the two German states as a sign of the revolution in this country.

The October uprising also sets standards for the development of democracy in the FRG. If it comes to a united Germany, we will introduce there much of what was won in the GDR. Including, above all, the idea of a peaceful, demilitarized and completely disarmed Germany. The direction of the thinking of the PDS is thereby disarmament for environmental protection. That could and ought to be a program for a future Germany, indeed for a future secure and ecologically oriented Europe.

[NEUES DEUTSCHLAND] You are thereby formulating a vision that is certainly worth pursuing. But the Left was not poor in visions before either. I am thinking only about the theoretical heritage of a Karl Liebknecht, who believed that the comprehensive development of the personality presupposes a life in harmony with nature. But that which has heretofore been called "real existing socialism" contributed substantially to the present ecological threat.

[Hegewald] I see the roots in the fact that in the early years of the Soviet Union the system of productive forces known by capitalism and working at the expense of nature was simply copied. And this was done increasingly in league with the mechanisms of the command system. That actually contradicted the Marxist understanding of producing rationally, that is, not just at the expense of nature but in equilibrium with it and also not at the expense of the health and dignity of the individual. These ideas were never taken seriously in the development of socialism. What we are really dealing with here is an early phase of socialism in terms of world history. Thus, it ultimately remained true to an understanding of progress that it had taken over from capitalism.

In the GDR, in turn, all we did was copy this copy. Added to that was the self-sufficient economic and energy policy, this walling ourselves in under the motto: we can do everything by ourselves. This is how the country was ruined. That is probably the only way one can put it.

But to take up Liebknecht's idea once again, our position is: we are not pursuing environmental policy in general but for the individual, for a healthy and rich way of life. For us, the environment is the world of man, in which he can develop himself intellectually or richly and live in dignity and socially secure. That is the humanistic way of thinking that we view as our ideal in the sense of a democratic socialism, in the sense of a left-wing movement in Germany. When it comes to this Germany, there ought at least to be a trail of the Left precisely in this respect.

[NEUES DEUTSCHLAND] So away from a technocratic approach in environmental policy?

[Hegewald] That is how I see it. But I also see that at the present time in our Ministry for Environmental Protection the problems are approached too technically-technologically and too economically. But it is a matter of people. When I began in Berlin as head of the Environmental Commission under the party board, one of the first paths led me to the Health Ministry. There I found that relations between this ministry and the Ministry for Environmental Protection were disturbed. This was the reason for our demand that the representatives of other ministries report at the central Green Table on how they cooperate with the Environmental Ministry. The motto is supervision of cooperation. The environmental problems are complex and must also be handled in a comprehensive manner.

[NEUES DEUTSCHLAND] The ecology paper of the PDS states that environmental protection must finally be a part of social policy. But when it is now necessary in our country to shut down enterprises that are a great burden on the environment—in the coal or chemicals industry, for example—social conflicts are programmed in advance.

[Hegewald] That is already leading to justifiable fears. For this reason, politically far-sighted decisions must be made. We need a clear concept for such restructuring immediately to ensure the right to work. The current economic policy does not seem decisive enough to me. I see a great chance for the creation of new jobs in small and middle-sized industry. It is urgently necessary to tackle projects—in the reduction of carbide production in Buna or copper production in Ilsenburg, for example—that provide for alternative jobs in the respective territories, including the corresponding retraining. The talks at the Roundtable last week proceeded in this direction. That will be a primary field of municipal policy. Precisely the comrades in the communities along with the trade unions must also stand up decisively for this. Because the interests of the workers are the focal point for us as a party of democratic socialism. Practical action for social security—I also mean that when I talk about the trail of the Left. We and the Social Democrats are objectively allied here.

[NEUES DEUTSCHLAND] Catchword energy policy. Everyone will accept a radical reduction of the much too-high consumption of current as part of the solution. But energy must continue to be produced. Do we have a chance to get out of the dilemma of "brown coal or nuclear power"?

[Hegewald] In any case, we must get away from the high use of brown coal as quickly as possible. The Mittag policy of brown coal at any price led to environmental stresses on a large scale, to damaged forests and to the harming of the health of many citizens. To continue it would mean to turn over entire landscapes—the Lausitz, for example. We have no right to do this.

The question of alternatives remains. A previously largely ignored possibility would be the increased use of natural gas from the USSR as well as from the North Sea. We need to examine the resources of regenerative energy such as the wind, sun, and water. But they will be limited. In connection with the Modrow plan, however, one should also look more closely at another direction. In my opinion, a uniform energy concept would be necessary for a future Germany, a concept that considers the great capacities that the FRG already has so that an increase in the production of nuclear power in this country might not be necessary.

[NEUES DEUTSCHLAND] Whereby we remain with the subject, for a substantial part of these capacities come from nuclear power plants.

[Hegewald] In principle, I had nothing against nuclear power as long as it can be safely controlled. But I

consider it to be extremely significant that this theme is finally no longer taboo in this country and that the nuclear power plants are becoming accessible to democratic control. The Greifswald Nuclear Power Plant that has been in the headlines shows how necessary that is. I say: if, on the basis of the corresponding expertise, we citizens come to the opinion that the production of nuclear power is safe, it should continue. If in the course of democratic control, however, it turns out that continued operation is irresponsible, then it must be cut back. Not so that it is shut down from one day to the next but so that one establishes possibilities in a staged program to compensate for these losses.

And nothing, absolutely nothing, ought to be decided without the employees of the nuclear power plants. But we cannot afford a second Chernobyl in Europe. In this sense, we as the PDS demand that the citizens' committees together with experts, to which I also include the employees of the nuclear power plants, exercise control over the production of nuclear power. We presented a proposal along these lines at the Roundtable last Monday.

[NEUES DEUTSCHLAND] Democratic control of nuclear power in a future Germany as well? The nuclear lobby of the FRG has heretofore avoided this control.

[Hegewald] Their uncontrolled power must also be broken. The revolutionary process in the GDR can have consequences in this regard as well, possibly even for the entire European area. Democratization of the production of nuclear power in Europe—that too would be the trail of the Left about which I have already spoken repeatedly. And that is no general talk about the left wing but very specific and certainly very tough for those who are then affected. But I also know that we will have many allies.

[NEUES DEUTSCHLAND] That all sounds quite Green.

[Hegewald] I do not have any problems with this. In the old SED [Socialist Unity Party of Germany], I was considered an exotic Green bird that—many know it—stood in opposition to the government's official environmental policy, which I criticized publicly. Whereby I also allied myself with representatives of the church. Thus, many reacted not just with frowns when Dr. Ducke, today moderator at the Roundtable, and I participated together in a forum on the ecological rebuilding of the society in the spring of 1989 at the Church of Reconciliation [Versoehnungskirche] in Dresden.

At that time, I also brought to mind words of Seneca, who wrote that we are born to live together. And our community is like an arch in which the stones prevent one another from falling. Put into today's terms, that means for me: regardless of parties and world views, we have the common duty to preserve nature and to make it worthy of human beings. The members of my party, the PDS, should do their share with practical steps in the enterprise or residential area. Because every step of true

movement is more important than a dozen programs, as Marx wrote to Wilhelm Bracke in 1875 in connection with the Gothaer Program. It thereby should not be a matter of narrow party politics but I would like to say that it is a matter of ecological conscience so that truly the best ideas are implemented. And together.

[NEUES DEUTSCHLAND] A good conclusion, I think. Thank you very much.

## POLAND

### New Policy on Industrial Pollution; 80 Largest Polluters Listed

90EP0370Z Warsaw RZECZPOSPOLITA in Polish  
15 Jan 90 p 4

[List of Production Enterprises Most Harmful to the Natural Environment: "The Greatest Poisoners"]

[Text] A provision on the need to draw up a national list of production enterprises whose economic operations result in the greatest damage to the natural environment was among the ecological resolutions of the roundtable. A group of enterprises which were suggested for inclusion on the list was determined as a result of work done by the State Inspectorate of Environmental Protection, as well as environmental protection, water management, and geology departments of voivodships. The enterprises nominated by all voivodships were scrupulously analyzed at the central level on the basis of the following criteria:

- the scale and type of the ecological threat posed, as well as its consequences for the people and the entire natural environment,
- the extent of the impact of the threat posed on areas characterized by large population density, outstanding natural features, and favorable conditions for the development of agriculture and forestry,
- the extent of technical and organizational opportunities for carrying out economic operations in compliance with the requirements of environmental protection set forth in the law.

An analysis done in keeping with the above criteria made it possible to rank conventionally all the production enterprises selected and arrange them in an order which takes into account more than just the absolute amount of pollutants discharged into the air, water, and soil.

In this manner, 80 enterprises which are the most burdensome for people and the natural environment were selected. Their geographic locations underscore once again territorial differentiation of the existing ecological threat which is very intensively accumulated in the southwestern areas of our country.

In releasing the list to the public I would like to state my desire to comply with the provision, likewise adopted at

the roundtable, on the need to insure comprehensive access to information on the status of the environment and counteractions undertaken with a view to eliminating the existing ecological threat.

The intention of our ministry is to apply a special system of monitoring and action on the part of the State Inspectorate of Environmental Protection and voivodship environmental services to the 80 enterprises on the list. After all, the objective is to speed up radically actions restricting the negative influence of these enterprises on the environment. The list of these 80 enterprises actually amounts to the enumeration of the sources of extreme danger to the environment throughout the country. Therefore, I will not hesitate to express the view that taking effective protective measures by the enterprises on the list is a basic condition for their further existence. After all, certain legal and economic instruments have already been created which make it possible to eliminate entirely or in part the types of economic operations which persistently harm the people and the natural environment. The voivodship authorities will take advantage of these opportunities in all extreme cases increasingly often, in a rational but resolute manner.

With a view to urgently putting in order and regimenting all endeavors aimed at fundamentally reducing the ecological hardships created by the enterprises on the list, administrative decisions will be issued with regard to all of them before 30 June 1990 by environmental protection, water management, and geology departments of voivodship administration which will set forth the schedules for assignments including:

- construction or updating of pollution-control installations,
- complete or partial transformation of production technologies which benefits the environment.

It is also expected that in July of this year the public will be informed about specific schedules for eliminating the hardships created by these enterprises.

The compiled list of 80 enterprises is not an ultimate or closed document. Enterprises which successfully perform their duties to the environment or those which discontinue entirely or in part their economic operations will disappear from the list. I would like to see as many enterprises as possible in the first group. New enterprises to which the system of special controls and actions applies will take the places vacated.

I am aware that institutionalized forms of ecological monitoring of the enterprises most harmful to the environment could be much more efficient if they were complemented by the development of social monitoring by all organizations whose operations include environmental protection.

I count very much on cooperation with the organs of local self-management and on the initiatives of the work forces of the production enterprises in question.

I would like to sensitize our public opinion to the current operations of the 80 enterprises mentioned, asking all of those involved in the issues of environmental protection for all kinds of remarks, conclusions, and proposals which may be directed to the departments of environmental protection, water management, and geology of proper voivodship administration.

Finally, I would like to stress that the special actions undertaken with regard to the enterprises posing the greatest ecological danger signify the beginning of the inescapable radicalization of requirements for all users of the natural environment which has now become the main task of ecological authorities.

[signed] Minister of Environmental Protection, Natural Resources, and Forestry Bronislaw Kaminski

#### **Warsaw Capital City Voivodship**

##### **Grodzisk Pharmaceutical Enterprise Polfa in Grodzisk Mazowiecki**

Very heavy pollution of the waters in the rivers Mrowna, Rokitnica, and Utrata and pollution of ground waters to a degree which makes it impossible to utilize them in 68 [wells] located on properties in the immediate vicinity of the enterprise.

##### **Warsaw Power and Heating Station Siekierki**

Heavy air pollution in the territory of Warsaw, considerable contribution to exceeding the maximum permissible concentration of sulfur dioxide and the sedimentation of particulate matter in the area of residential developments. Pollution of the river Vistula. Considerable danger to the population residing in the vicinity of the Zawady waste heaps.

#### **Bielsko Biala Voivodship**

##### **Oswiecim Chemical Enterprise in Oswiecim**

Prevalent contributor to air pollution in the northeastern part of Bielsko-Biala Voivodship, the unfavorable influence of which extends to the territories of Krakow and Katowice Voivodships. In the vicinity of the enterprise, the permissible concentration of particulate matter is exceeded by a factor of about 2, and that of some gases by a factor of about 4. The enterprise amounts to a potential source of extraordinary danger to the environment; the waste waters discharged cause the permissible levels of pollution to be exceeded in the river Wlosienica, and the quality of water in the Vistula to deteriorate considerably.

#### **Bydgoszcz Voivodship**

##### **Janikowo Soda Enterprise in Janikowo**

Permissible concentrations of some gaseous and particulate pollutants of the air exceeded severalfold. Soil

deteriorating, and ground waters excessively polluted in the area of sedimentation ponds. Water in the river Notec increasingly saline.

#### **Organika-Zachem Chemical Enterprise in Bydgoszcz**

Highly burdensome pollution of the air by toxic compounds (phenol, formaldehyde, chlorine). Corrosive waste waters discharged into the Vistula without purification. Soil and ground water contaminated by the waste stored. Potential source of an extraordinary environmental danger.

#### **Chelm Voivodship**

##### **Chelm Cement Mill in Chelm**

Continuous excessive pollution of the air with particulate matter affecting neighboring built-up areas, the Chelm Landscape Park, and nature reserves. The stored production waste is a threat to the Bariera and Chelm intakes of sub-surface water.

##### **Rejowiec Cement Mill in Rejowiec Fabryczny**

The cement mill is operated without adequate dust filters; it is highly burdensome for the adjacent urban and nature areas.

#### **Czestochowa Voivodship**

##### **Rudniki Cement Mill in Rudniki**

Permissible norms of particulate matter pollution in urban areas exceeded many times.

##### **Kalety Pulp and Paper Enterprise in Kalety**

Untreated, critically burdensome waste of pulp and paper production discharged into the river Mala Panew which was classified as the 1st grade of purity (the source of water supply to the populace) has caused its complete degradation.

##### **Czestochowa Iron Mill in Czestochowa**

Very heavy emission of particulate matter and gases endangers the population of Czestochowa and the group of Jurajskie Landscape Parks.

#### **Gdansk Voivodship**

##### **Processing and Shipping Enterprise of Chemical Minerals "Siarkopol" in Gdansk**

Particularly high sulfur emissions cause the pronounced acidification of soil and ground water, as well as the degradation of plants, on a considerable area adjacent to the enterprise.

##### **Gdansk Phosphorus Fertilizer Enterprise in Gdansk**

Permissible concentrations of fluorine compounds, sulfur oxides, and sulfuric acid in the air are exceeded

many times over; likewise, tremendous heaps of phosphoric gypsum endanger residential areas and areas under special protection. Considerable pollution of the Gdansk Bay with fluorides and phosphates.

#### **Jelenia Gora Voivodship**

##### **Turow Brown Coal Opencast Mine in Bogatynia**

Extensive devastation of the surface of the earth. Under the influence of the depression funnel, ground waters have disappeared in the entire area of the Zytawa panhandle. Above-the-norm noise intensity and pollution of water in the rivers Nysa Luzycka and Miedzianka.

##### **Turow Power Station in Bogatynia**

Continuous above-the-norm pollution of the air with sulfur dioxide, nitrogen oxide, and suspended particulate matter, as well as pollution of the soil by heavy metal compounds (contribution to the degradation of the Sudety forests). Waste water causes excessive water pollution in the rivers Miedzianka and Rybi Potok.

##### **Wizow Chemical Enterprise in Boleslawiec**

Above-the-norm concentrations of toxic sulfur and fluorine compounds endanger adjacent villages and cause marked degradation of soil and forests. Pollution running off the heaps of accumulated waste damages soil and ground waters. Waste water ruins the river Bobr.

#### **Katowice Voivodship**

##### **Hajduki Chemical Enterprise in Chorzow**

Waste water is ruining the river Rawa (permissible concentrations of phenols exceeded several dozen times); pollutants from the waste heaps have entirely destroyed the nearby Kalina Reservoir. The enterprise makes the living conditions of local residents dramatically worse.

##### **Kosciuszko Iron Mill in Chorzow**

Permissible concentrations of pollutants in the air (including highly toxic) in the densely populated areas of Chorzow exceeded frequently.

##### **Zabrze Coking Combine—the Knurow Coking Plant in Knurow**

Permissible concentrations of highly toxic pollutants exceeded severalfold in densely populated areas. Considerable health risk.

##### **Zabrze Coking Combine—the Gliwice Coking Plant in Gliwice**

Highly burdensome enterprise. Permissible concentrations of particulate and gaseous pollutants, including toxic, in the air exceeded severalfold in residential areas. Considerable health risk.

#### **Metallurgical Combine the Katowice Iron Mill in Dabrowa Gornicza**

The largest source of the emission of atmospheric pollution in Katowice Voivodship. Emissions of metallurgical particulate matter (including lead and cadmium) and power-industry matter (including fluorine and hydrocarbons) causing permissible concentrations of pollutants in the air to be exceeded on a considerable area. Excessive amounts of pollutants (including iron and zinc) are discharged into water.

##### **P. Finder Nitrogenous Fertilizer Enterprise in Chorzow—Bobrek Carbide Plant in Bytom**

Highly burdensome pollution of the air with gases and particulate matter (including highly toxic); in the most ecologically threatened quarters of Bytom, permissible concentrations are exceeded several to several dozen times.

##### **Century Cement Mill in Ogorzieniec**

Permissible concentrations of particulate and gaseous matter in the air, including those highly toxic, exceeded several times in built-up areas, as well as in adjacent areas under special protection.

##### **Makoszowy Coking Plant in Zabrze-Makoszowy**

Very heavy particulate and gaseous pollution of the air, including many particularly harmful toxic substances; their permissible concentrations are exceeded several to several dozen times; considerable health risk.

##### **Friendship Coking Enterprise in Dabrowa Gornicza**

Considerable emission of particulate and gaseous pollutants from coking processes. The discharge of waste water containing excessive quantities of phenols, cyanides, rhodanates, and ammonia nitrogen.

##### **Rybnik Power Station in Rybnik**

Sizable emission of air pollutants causing the permissible norms of particulate and gaseous emission of the air to be exceeded many times. Transportation and improper storage of waste cause secondary dusting which endangers built-up areas.

##### **Laziski Iron Mill in Laziski Gorne**

Highly burdensome emission of pollutants into the air; permissible concentrations of particulate matter and gases in areas with dense residential structures have been exceeded many times.

##### **Laziski Power Station in Laziski Gorne**

Highly burdensome emission of pollutants into the air; considerable contribution to exceeding the permissible norms of concentration of particulate matter and gases. Affects built-up areas and nature in a large area.

**Siersza Power Station in Trzebinia**

Highly burdensome emission of pollutants into the air; considerable influence on exceeding the permissible concentrations of particulate matter and gases. Affects built-up areas and nature in a large area.

**Lagisza Power Station in Bedzin**

Highly burdensome emission of pollutants into the air, considerable contribution to exceeding permissible concentrations of particulate matter and gases. Affects built-up areas and nature in a large area.

**Jaworzno III Power Station in Jaworzno**

Highly burdensome emission of pollutants into the air, considerable contribution to exceeding permissible concentrations of particulate matter and gases. Affects built-up areas and nature in a large area. Untreated waste water and a waste heap cause dangerous contamination of the river Przemsza.

**Hard Coal Mine Czeczot in Wola**

**Hard Coal Mine Piast in Tychy**

**Hard Coal Mine Ziemowit in Tychy**

Mine waters from these mines constitute the prevalent source of catastrophic salination of the Upper Vistula which causes extremely unfavorable consequences for the biocenosis of the river, promotes the corrosion of heating, water supply, and sewer installations, water management structures, and river craft, and restricts considerably the opportunity to use surface waters for the needs of industry, municipal uses, and agriculture.

**Bobrek Iron Mill in Bytom**

Highly burdensome air pollution, permissible concentrations of particulate matter and toxic gases in built-up areas exceeded by a dozen or so times.

**Zinc Smelting Plant Miasteczko Slaskie**

Highly burdensome pollution of the air, permissible concentrations of particulate matter and gases in forested and built-up areas exceeded severalfold. Critical pollution of the soil with heavy metals, especially lead and cadmium, which rules out agricultural use.

**Mining and Metallurgical Enterprise Boleslaw in Bukowno**

Extremely high pollution of all elements of the environment with heavy metals, including lead, zinc, and cadmium. The degree of soil degradation renders agricultural use impossible.

**Organika-Azot Chemical Enterprise in Jaworzno**

Untreated corrosive waste water causes marked pollution of surface and ground waters and soil. Dangerous post-production waste causes considerable contamination of the soil and water, mainly by pesticides.

**Kielce Voivodship**

**Nowiny Cement and Lime Enterprise in Sitkowka**

Highly burdensome pollution of the air by particulate matter and gases in well-developed urban areas, as well as in the areas under special protection.

**Konin Voivodship**

**Aluminum Smelting Plant Konin in Konin**

Highly burdensome pollution of the air, water, and soil by highly toxic fluorine compounds in the area of the city of Konin and nearby settlements and villages. Waste water causes the quality of water in the Warta to deteriorate in the area of water intake for Konin.

**Konin Power Station in Konin**

Sizable emission of particulate matter and gaseous pollutants. Discharge of heated water and waste water to Patnow Lake which causes its eutrophication.

**Krakow Voivodship**

**Krakow Soda Plant in Krakow**

Extremely worn out production lines with high accident rates burdening the atmosphere located in the downtown area of the largest residential development of Krakow. Chlorine compounds contained in raw sewage and bleached from sedimentation ponds adjacent to the enterprise constitute a significant source of pollution for, among others, the rivers Vistula and Wilga.

**Metallurgical Combine Lenin Iron Mill in Krakow**

One of the most burdensome sources of air pollution throughout the country poses an exceptional danger for the people and monuments of Krakow and agriculture and nature in the entire region.

**Krakow Pharmaceutical Enterprise Polfa in Krakow**

Highly burdensome emission of gaseous pollutants, and especially aromatic hydrocarbons, affects the immediately adjacent residential areas and groups of monuments in Krakow.

**Legnica Voivodship**

**Mining and Metallurgical Combine—Copper Metallurgical Plant in Legnica**

Highly burdensome pollution of all elements of the environment with toxic gases and particulate matter, including highly toxic compounds of heavy metals. Danger to the health of the people of Legnica and adjacent forests and farmland.

**Mining and Metallurgical Combine—Copper Metallurgical Plant Glogow I in Glogow**

High rate of emission of particulate and gaseous pollutants, including highly toxic. Considerable area of flotation waste storage causing the pollution of air, soil, and water. Deterioration of farmland and forest land.

**Lublin Voivodship****Truck Works in Lublin**

Highly burdensome air pollution, permissible concentration of particulate matter and gases in densely populated areas has been exceeded many times. Waste water with a considerable content of heavy metal pollutes surface waters.

**Nitrogenous Fertilizer Plant in Pulawy**

High emission of particulate matter and gases causes soils and plants to deteriorate in sizable areas, including those under special protection—Kazimierski Landscape Park and the resort in Naleczow. Forest stands destroyed in an area of about 8,000 hectares.

**Lodz Voivodship****Dies Industry Enterprise Boruta in Zgierz**

Highly burdensome pollution of the air with particularly toxic compounds the concentration of which exceeds permissible norms. Extremely corrosive raw sewage ruins water in the river Bzura.

**Polonit Enterprises for Seals and Asbestos Products in Lodz, Enterprise B**

Highly burdensome pollution by toxic substances—gasoline solvent—and particulate matter containing asbestos, as well as noise intensity in residential areas exceeding permissible norms.

**Nowy Sacz Voivodship****Sacz Electrical Coal Processing Enterprises in Nowy Sacz**

Highly burdensome pollution with hydrocarbons in densely populated areas and areas under special protection.

**Opole Voivodship****Coking Enterprise of the Silesian Insurgents in Zdzieszowice**

Highly burdensome air pollution by toxic gases and particulate matter in areas with dense residential structures. Considerable health risk.

**Blachownia Chemical Enterprise in Kedzierzyn-Kozle**

Highly burdensome air pollution to a degree exceeding permissible concentrations of gaseous pollutants, including toxic substances, in built-up areas. Dangerous

waste accumulated in considerable quantities endangers the purity of ground and surface water. Considerable deterioration of farmland and forest areas.

**Kedzierzyn Nitrogenous Fertilizer in Kedzierzyn-Kozle**

Sizable emission of particulate and gaseous pollutants, in particular ammonia, causes nearby forests and soil to deteriorate. A considerable source of pollution in the waters of the Odra.

**Ostroleka Voivodship****Ostroleka Pulp and Paper Enterprise in Ostroleka**

Permissible concentrations of particulate pollutants and malodorous gases were exceeded many times. Waste water causes considerable water pollution in the river Narew. Improperly stored waste endangers ground water.

**Piotrkow Voivodship****The Belchatow Power Station in Rogowiec**

The greatest emission of gases in the country. Marked deterioration of a large area of forests. Waste storage causes an increase in the pollution of ground water.

**The Belchatow Brown Coal Opencast Mine in Belchatow**

Ground surface disturbed over a large area; an extensive depression funnel formed which causes the disappearance of water in shallow water intakes, drying of the soil, and subsidence of the ground. Farmland and forests endangered.

**Wistom Chemical Fiber Plant in Tomaszow Mazowiecki**

Sizable emission of hydrogen sulfide, carbon disulfide, and sulfur dioxide damages built-up areas. One of the main sources of pollution in the river Pilica.

**Plock Voivodship****Mazowsze Refinery and Petrochemical Enterprise in Plock**

Above-the-norm particulate and gaseous pollution of the air with toxic substances in well-developed urban areas. The enterprise is one of the main direct sources of pollution of the middle reaches of the Vistula and a potential source of environmental threat due to an accident.

**Poznan Voivodship****Poznan Chemical Enterprise in Lubon**

High emission of gaseous pollutants, including fluorine and suspensions of sulfuric acids and sulfur dioxide. The contamination of the soil and ground water in the area of the dumping ground by very harmful post-production waste. Pollution of the river Warta and deterioration of nature in the area of the Great Poland National Park.

**Rzeszow Voivodship**

**Rzeszow Enterprise of Vapor Lamps Polam-Rzeszow in Podgwidow Nowy**

The enterprise is being liquidated. The waste containing mercury and stored in the compound of the plant causes the contamination of the soil and ground water, as well as the emission of mercury into the air.

**Skierniewice Voivodship**

**Chodakow Chemical Fiber Enterprise Chemitex in Sochaczew**

Permissible concentrations of carbon disulfide in the air in residential areas and in the Kampinos National Park were exceeded severalfold. The waste waters pollute the rivers Utrata and Bzura.

**Szczecin Voivodship**

**Police Chemical Enterprise in Police**

High emission of particulate matter and gases into the air, including ammonia and sulfuric acid. Inadequately treated waste causes the quality of water in the Odra to deteriorate. Strip Phosphorous gypsum storage constitutes a potential source of extreme danger to the environment.

**Chemical Fiber Enterprise Chemitex-Wiskord in Szczecin**

Considerable emission of hydrogen sulfide and carbon disulfide in the affected region causes permissible concentrations to be exceeded in built-up areas and areas under special protection. Waters polluted by acidic sewage containing zinc.

**Tarnobrzeg Voivodship**

**Siarkopol Mine and Sulfur Processing Enterprise in Tarnobrzeg**

Air polluted by toxic gaseous compounds. Waste waters have completely ruined the rivers Mokrzyszczowka and Trzesniowka and are a significant source of pollution of the Vistula.

**T. Kosciuszko Power Station in Polaniec**

High emission of sulfur dioxide, nitrogen oxides, and particulate matter into the air. Degradation of soil in the area of ash storage.

**Stalowa Wola Power Station in Stalowa Wola**

High emission of sulfur dioxide and particulate matter into the air in a well-developed urban area. Degradation of soil around ash storage.

**Mine and Sulfur Chemistry Enterprise Siarkopol in Grzybow**

High emission of toxic particulate and gaseous pollutants. Pronounced soil degradation. Waste water pollutes the water in the rivers Czarna Staszowska and Wschodnia.

**Tarnow Voivodship**

**Nitrogenous Fertilizer Enterprise in Tarnow**

High emission of toxic substances into the air poses an ecological threat for Tarnow. Markedly polluted waste waters destroy the rivers Biala and Dunajec.

**ERG Plastics Enterprises in Pustkow**

Burdensome emission of phenol and formaldehyde into the air and water. Pollution of the Wisloka with formaldehyde in the event of an accident threatens the intake of water for Mielec.

**Niedomice Pulp Enterprise in Niedomice**

Water in the rivers Zabnica and Bren destroyed by untreated waste; ground waters in the tributary areas of these rivers are polluted; several hundred farms are deprived of drinking water. Permissible concentrations of gaseous compounds in the air are exceeded.

**Torun Voivodship**

**Torun Enterprises of Non-Organic Industry Polchem in Torun**

Concentrations of sulfur dioxide in the air exceeding those permissible and the high accident rate of equipment cause considerable deterioration of nature, especially forests. A potential source of extreme environmental threat. A considerable source of pollution in the Vistula.

**Walbrzych Voivodship**

**Walbrzych Coking Enterprise in Walbrzych**

A highly burdensome enterprise. Permissible concentrations of particulate and gaseous pollutants in the air, including highly toxic compounds, are exceeded severalfold in the residential areas. Considerable health risk. Contamination of underground water by the storage site of toxic tar waste.

**Power and Heating Station Victoria in Walbrzych**

High emission of particulate matter and gases in a densely populated area (Walbrzych) and an area under special protection (Szczawno-Zdroj).

**Wloclawek Voivodship**

**Pulp and Paper Enterprise in Wloclawek**

Considerable source of pollution in the Vistula due to insufficiently treated production waste. Permissible concentrations of sulfur dioxide exceeded in a densely populated affected area; emission of malodorous compounds into the air.

**Nitrogenous Fertilizer Plant in Wloclawek**

Emission of considerable amounts of nitrogen oxides, sulfur dioxide, ammonia, vinyl chloride, and particles of polivinylchloride creates difficulties for the citizens of Wloclawek and poses a threat to some of its citizens given an unfavorable combination of atmospheric factors. Significant potential source of extreme environmental threat.

**Wroclaw Voivodship****Odra Enterprise of Organic Industry Organika-Rokita in Brzeg Dolny**

High emissions of toxic substances into the atmosphere: phenol, chlorophenol, benzene, and hydrogen sulfide. Permissible concentrations of phenols in the air exceeded several times. Deterioration of the Odra as a result of inadequate treatment of the waste. Excessive concentration of mercury in the soil in the vicinity of the enterprise. Potential source of extreme environmental threat.

**Hutmen Metallurgical and Processing Enterprise for Non-Ferrous Metals in Wroclaw**

Permissible concentrations of particulate matter, zinc, and lead in the air in a well-developed urban area exceeded. Contamination of the soil and ground water in the area of the enterprise and in the region of waste accumulation.

**Viscoplast Chemical Enterprise in Wroclaw**

Permissible concentrations of sulfur dioxide in the inhabited area affected by the plant have been exceeded severalfold. Pollution of Odra by heavy metals due to the insufficient treatment of waste waters, as well as of the soil in the vicinity of the waste storage areas.

**Olawa Metallurgical Enterprise in Olawa**

Considerable emission of particulate matter containing heavy metals into the air causes pronounced contamination of the environment with lead, zinc, and cadmium in the urban zone affected by the plant.

**Siechnice Metallurgical Enterprise in Siechnice**

The enterprise is being liquidated. The heap of metallurgical slag poses a threat to the water intake for Wroclaw.

## PAKISTAN

### Authorities Ban U.S. Firm's Toxic Waste

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[Text] Karachi, March 22 (AFP)—Pakistani authorities have banned the entry of a ship carrying "hazardous poisonous and corrosive" material from a U.S.-based company, officials here said Thursday [22 March].

Port authorities also said the Maritime Security Agency had been alerted against the vessel's arrival.

The director general of the Environmental Protection Agency (EPA) said "the consignment which was due to enter Pakistan on April 2, will not enter," and would be redirected to its point of origin.

The consignment had been sent by a California-based company to Dubai where it was to be loaded onto another ship for transfer to Karachi, sources said.

The EPA was now examining the shipping documents together with the list of chemicals being carried, the sources said.

The EPA director general said the bona fides of the Pakistani importer and the motive behind the consignment were also being looked into.

Press reports here have suggested the toxic chemicals worth 12,706 U.S. dollars were being imported for dumping somewhere in Pakistan.

Reports of the consignment's arrival had created considerable concern among the public and social welfare agencies who have urged the president and the prime minister to immediately stop such transactions. They also demanded a ban on the dumping of toxic chemical waste in Pakistan.

**Vorontsov on Duties, Goals as Goskompriroda Chairman**

90US0581A Moscow PRAVITELSTVENNYY VESTNIK in Russian No 7, Feb 90 p 12

[Article by Yu Michurin: "Is a Minister's Portfolio Light?"]

[Text] A half-year ago a scientist became a member of the government. A few days ago our correspondent sat down next to him, in order find an answer to the question that is the title of this article.

Not too long ago Nikolay Nikolayevich Vorontsov was known, probably, only among scientists. But very unexpectedly for many people, the USSR Supreme Soviet confirmed him as chairman of USSR State Committee for Environmental Protection [Goskompriroda]. People wondered, "How will a man of science undertake apparatus work?"

A half-year has passed. The parliamentary passions that were evoked by the formation of the government have abated. But the interest in Vorontsov has not lessened. He is invited to appear on television, magazines ask him to write articles, and it is a rare week when he does not have a meeting with journalists. The chairman's deputies assert that he not refused a single meeting with the press, at which time he does not simply answer the questions, but also conducts a lively conversation, making no attempt to conceal any departmental "secrets."

Perhaps that is what a minister is supposed to be like: a person who speaks openly about our common woes, who has a thorough knowledge about the problems, who shocks everyone with the unpleasant information about the state of the environment. But at the same time he should also be a very proper individual, who speaks to his subordinates only in the formal mode of speaking, rather than using the familiar mode as certain workers in the apparatus do.

"No, I do not think that the word 'apparatchik' is a derogatory one," Nikolay Nikolayevich once stated in this regard. "For more than seven years I myself worked in the apparatus: I was the academic secretary of the Siberian Branch of USSR Academy of Sciences for the biological sciences and simultaneously I headed a laboratory at the Institute of Cytology and Genetics, SO [Siberian Branch], USSR Academy of Sciences. From my own experience I know the administrative work style. As everyone knows, not a single state system could do without apparatchiks. What kind of workers are needed in the apparatus is another matter. Everything depends upon their attitude toward the job, and their degree of competency. Our State Committee currently does not have enough specialists: geologists, economists, zoologists, biologists, power engineers... It is necessary, in addition, to ask many leading scientists to cooperate with us. Then it will be possible to resolve the tasks that have been assigned to us."

There is no need to doubt that, as a scientist, he has an excellent awareness of what must be done. But how and with whom is another matter. Because even those who today unconditionally support the policy of the committee's new leader are already beginning to display impatience: when will the changes begin?

Vorontsov cannot be called a conservative, but he does not comprehend the words "revolutionary perestroika," being completely aware that one cannot "switch gears" immediately—if you do that, you might knock the engine out of commission. It is probably for that reason he is not hurrying to make any fundamental change in anything in the committee, although he does have plans in that regard.

True, a small amount of time has been allowed for vacillating. The confidence credit might be exhausted soon. I think that Vorontsov does not like very to be in the position of taking too long to make his next move, although, with every passing day, he certainly becomes increasingly aware of how heavy a committee chairman's portfolio is. Because the creation of Goskompriroda, in his opinion, was at least 30 years late. And there is nothing worse than waiting and trying to catch up. In addition, for a long time it had been impossible to find anyone who wanted to head our environmental protection department. So, as he jokingly remarked, he did not have any other way out than to occupy this "ecological niche" himself.

Incidentally, certain people see in his transfer a desire to become one of the "nomenklatura." But he frankly says that certain of the privileges that he has received, and in particular a personal car, are to a certain degree a burden. Nikolay Nikolayevich feels that he is an inveterate driver, although it is true that he does not know much about the equipment itself. But for a long time his rather old Zhigulenok [Zhiguli car] has been laid up. "The person who probably suffers most from this is my wife," he says laughingly. "She doesn't have private transportation any more."

Incidentally, Yelena Alekseyevna has taken an understanding attitude toward his new work. And their youngest daughter, 17-year-old Dasha, stated her opinion flatly, "Dad, you've gone off your rocker!" One can understand her: when her father was engaged in science, he would often work until late at night and would go on expeditions, but now she will see him even less frequently. It is easier to explain the situation to his oldest daughter, Masha. She is also a biologist, and she is completely aware of what difficulties await her father in the field of environmental protection.

Just as it is difficult for his family members to become accustomed to his new work, he himself has had to become newly accustomed to many things. He has a completely crammed working day that is rigidly planned. His business meetings are scheduled not only at 1200 hours, but also at 2000 hours. And in addition he has to deal with the endless telephone calls dealing with every

conceivable subject, as well as papers, papers, and more papers, stacks of which are on his desk.

The work mode that he has chosen for himself today cannot be called normal. For the time being, he cannot allow himself to attempt once again to quit smoking, and he obviously drinks too much coffee. Sometimes he does not eat a proper lunch. All these are details, that are known only to small circle of people around him. And it would really not be worthwhile to even mention this, if we did not hear repeatedly, "Well, what is Vorontsov doing with his time, anyway? He hasn't been able yet to have a proper meeting with the committee collective!" I can add that it is not only the apparatus, but also his deputies who sometimes do not see him for a week at a time. Even they have been unable to catch hold of him on the job.

Yes, it takes more than a single day for scientists to become ministers. So he has assumed for himself a rhythm that allows him to become informed about a situation as quickly as possible, to be able to analyze everything himself. Incidentally, he takes a sober look at the future: within the next few years the only thing that he can realistically achieve is to reduce the ecological tension, and achieve a stability in the state of the environment. But it will have to be improved slowly. In addition, we will also have to overcome our ecological ignorance. It will be necessary for Vorontsov to speak everywhere about cultivating the proper attitude toward the environment—not only in the upper echelons of power, but also in meetings with his constituents. Because Nikolay Nikolayevich, having handed over one deputy mandate, joined the struggle to get another one, running as a candidate for election as an RSFSR people deputy. His election platform remains unchanged and is based on the position that the stability of the biological world is guaranteed only by the maximum variety of species.

His experience in the political struggle, without a doubt, ought to help him also in organizing the work of his apparatus. True, what is needed here is another kind of experience—apparatus experience. Incidentally, the lack of such is an advantage that enables him to carry out an independent policy. He has already succeeded in finding a common language with certain ministers, but still has to do that with others. Of course, it is not yet an easy matter to combat departmental selfishness. For example, the people at USSR Ministry of Metallurgy have not yet become deeply concerned about protecting the environment.

"It's no easy job to change the departmental way of thinking," he thinks aloud. "It is necessary to achieve a situation in which it becomes advantageous for the ministries to protect the environment. Nothing can be done without economic levers."

The Goskompriroda chairman has already succeeded in doing a few things in this direction. But there have also been the first failures. The beginning of his activities

coincided with the rejection by the Committee on Ecology and the Efficient Use of Natural Resources, USSR Supreme Soviet, of the long-term state ecological program on which the representatives of various departments had been working. Vorontsov decided to involve in the work on the new draft exclusively scientific forces. After a few months of intensive work, a new program concept was prepared. At various administrative levels it was accepted ambiguously. The scientific computations were not apprehended. People had become more accustomed to seeing specific figures and precise plans. It was necessary at the final stage for the apparatus to be brought in.

Nevertheless, at heart Vorontsov always remains a scientist. And he cherishes like a breath of fresh air those minutes when he can find time to go back to his beloved Institute of the Biology of Development imeni Koltsov, where he has continued to retain a place for himself as a chief scientific associate. Recently a telegram arrived at Goskompriroda. It read, "Soviet scientist, professor, doctor of biological sciences, chairman of USSR Goskompriroda N. N. Vorontsov has been awarded by the Max Planck Society the Bruno-H. Schubert Prize (Federal German Republic) for his outstanding achievements in the field of the protection of the environment and nature."

Could it be that it is easier for an outsider to see how Vorontsov the scientist and Vorontsov the minister is working?

#### Ecology Committee Chairman Salykov Interviewed on Current Issues

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26 Feb-4 Mar 90 pp 12-13

[Interview with Kakimbek Salykovich Salykov, chairman of the USSR Supreme Soviet Committee on Ecology and the Rational Use of Natural Resources, by Lev Aleynik: "Ecology—Pain and Hope"]

[Text] [Aleynik] Kakimbek Salykovich, at the end of last year the USSR Supreme Soviet passed a resolution "On Urgent Measures for the Ecological Recovery of the Country," which frankly admitted that the situation was disturbing and even critical in some places and listed the disaster zones and the regions on the verge of ecological crisis. Finally, it contained the categorical admission that one-sixth of the population of the USSR lives in a hundred cities where the maximum permissible concentration of harmful substances in the air is exceeded 10 times over or more. In this document, once again—for at least the hundredth time in memory!—"specific measures have been elaborated and instructions have been issued to ministries and departments"—please excuse this use of formal and awkward "bureaucratese." Nevertheless, after working directly with these problems as a journalist for many years, I think I can see something

behind the statements in the resolution, something signalling the impending modification of all of the cumbersome governmental machinery in our sixth of the world's dry land for the genuine reorientation of economic management.

[Salykov] You are right. For too long, ecology was seen as something distinctly separate from the economy. It is much more important, however, to acknowledge their interaction and interdependence and to take intelligent action by directing our efforts at the survival of our own people and of all mankind. People realized long ago that only the collective resolution of ecological problems and the politicizing of these problems can enrich the global humanism which is in such disastrously short supply on our remarkable planet. This is precisely what M.S. Gorbachev was talking about in Moscow when he addressed the Global Forum on Environmental Protection and Development for Survival, saying that the vital importance of ecological problems was not acknowledged on the level of policy in the Soviet Union until just recently, that the dimensions of the country and its wealth encouraged our ecological carelessness, and that even when pollution began to acquire dangerous proportions in some parts of the country, this was not fully appreciated right away.

[Aleynik] A lengthy report on the national ecological situation was recently published in our country—the first report in the history of the Soviet State containing an impartial analysis of our problems and dangers. As the saying goes, better late than never.... Still, it took a criminally—I can use this word without fear—long time to publish the facts about, for example, the after-effects of the Chernobyl disaster, which were not divulged in full until just recently. Meanwhile, a genuine people's war for complete ecological glasnost had broken out in the country. What is the committee's position on these matters?

[Salykov] We defend the right of each nationality and each individual to be fully informed of all ecological problems. Furthermore, we will adhere to the principled line of publishing complete sets of unbiased statistics in the popular news media as well as in specialized publications. We people's deputies of the USSR in the Supreme Soviet of our country, because of our activity on the committee, do not dissociate ourselves at all from the broad public movement in defense of nature, the movement which has become so powerful. Many of us are working closely with numerous ecological organizations in a number of republics and regions and are also establishing international contacts with the "Greens." Only the complete truth about what we have done and are still doing to nature and only collective efforts to restore what we have ruined will save us.

[Aleynik] For many decades the dogmatic members of the previous leadership regarded ecological concerns as a burden, invested miserly sums in environmental protection, and overlooked the disastrous state of affairs in this sphere. As we know, the "time of missed opportunities"

caused the dramatic deterioration of the state of the ecology because the uncontrolled mechanism of the wasteful use of natural resources was operating at full speed: Few people cared about the depletion of non-renewable natural resources because the rapacious mentality of slogans calling for bigger and better production prevailed. Incidentally, why am I euphorically relating all of this in the past tense? After all, you know better than anyone else that these practices still persist.

[Salykov] At this time I have too little evidence to the contrary. Regrettably, the mere appeal to all of us to "make everything greener" is certainly not enough. There were mistakes in the development and distribution of productive forces in line with customary procedures—"Apres moi, le deluge." The low level of the frequently antediluvian technology of production in more than one sphere of "national mismanagement" led to calamitous and sweeping violations of natural systems. I never tire of repeating that ecological disasters have not led to any decisive advances in investment policy and in the commercial and technological structure of today's economy. In other words, the necessary attention is still not being paid to the incorporation of ecologically clean, waste-free technologies and production processes on the national scale. It literally takes a battle, following dramatic demonstrations by the people who live near production units barbarously injuring all forms of life in the district, to stop the construction of disastrously harmful and repugnant enterprises or to close them down or re-specialize them: the Crimean nuclear power plant, the Volga-Chogray canal, the protein and vitamin concentrate plants....

[Aleynik] Are there many such examples? Not many. The thoughtless closure of the most necessary "dirty" plants, however, is also absolutely unacceptable: Are emotions and clean air enough to sustain life? This is why your committee's program for the ecological recovery of the country and the USSR Supreme Soviet resolution with which we began this discussion are probably the first impartial and objective forecasts to be issued on such a high official level. They also specify strict deadlines for the first steps to keep all of us from falling to the bottom of the abyss of poverty and becoming a raw material base for the developed countries. I realize that everything is important, but to what do you assign priority?

[Salykov] There is good reason that the document specifies the most urgent measures. There is a growing awareness in the upper echelons of government of how far we have gone in the careless "subjugation of nature." Priority has been assigned to resolute steps to emerge from the ecological crisis—the urgent aid to disaster zones now included in state plans for the socioeconomic development of the country and of union and autonomous republics in the coming 5 years. These priorities are also being stipulated in the plans which are being drafted today for submission to the USSR Supreme Soviet and which will be published widely prior to this for nationwide discussion in the form of a draft long-range state program of environmental protection and the

rational use of the natural resources of the USSR in the next five-year plan and up to 2005. In particular, the very first point stipulates the improvement of the state of the environment in cities and populated points where the level of air pollution is several times in excess of the maximum permissible concentration to meet standard requirements. Besides this, questions connected with the population of safety zones around ecologically dangerous enterprises and production units are to be investigated, and the quality of drinking water and food is to be improved in 1991-1995 to meet public health standards.

We are simply obligated to do everything we can to avert new tragedies. To this end, starting this year the financing of all projects and programs will depend on a positive evaluation by a state board of ecological inspectors.

[Aleynik] Of course it will have to be independent?

[Salykov] Furthermore, state ecological appraisals of previously approved programs of agricultural reclamation and chemicalization, the development of nuclear power engineering and the chemical and microbiological industries, and others will be required this year and next year. During the same 2 years there will be ecological inspections of all existing enterprises and ecologically dangerous facilities, as well as of specific territories, and the results of these will then serve as the basis for specific plans for ecological recovery. We will fight for changes in investment policy at the session and at the congress: We have had enough of the madness of gigantomania!

[Aleynik] As we have seen so many times, however, setting good guidelines and drawing up excellent plans are not enough. What will guarantee the efficacy of the plans? Is the machinery of the new ecological resolution of the USSR Supreme Soviet not likely to malfunction?

[Salykov] I think that the hopes for the precise operation of economic levers are quite valid. After all, we hope to change the economy of the use of natural resources, and all steps in this direction are to be closely coordinated with the radical economic reform in the country: the new idea of economic development and the new principles of the expansion—or, more precisely, the acquisition—of rights by union and autonomous republics and all economic entities. A network of regional ecological prosecuting attorneys, directly under the jurisdiction of the USSR procurator general, is being established. I have said several times that it is not enough for us to simply emerge from the dead zone of lawlessness. We must also envisage effective ecological-economic levers in environmental protection laws. Violations of the law, the pollution of the environment and the irrational use of natural resources, must become economically ruinous and morally unacceptable. Here the interaction and interdependence of ecology and the economy are indissoluble: A statute on economic incentives for various organizations for specific contributions to the restoration of the natural habitat of animals and the ecological recovery of our

cities and rural communities, our air and water, and our land is to be drawn up in the first quarter of this year.... Enterprises, associations, and organizations will have to pay a special tax for using ecologically dangerous technologies and for harmful emissions and sewage. Most of these funds will be used for conservation purposes.

[Aleynik] I hope the tax will be harsh enough to bankrupt the good-for-nothing "managers" who are ruthlessly and recklessly destroying the common property of present and future generations. It is good that you want to hold officials responsible for the deliberate concealment or distortion of information about accidents with ecological after-effects and about the state of public health and environmental pollution. This will finally be part of the legislative concept of "ecological crimes," with the possibility of the criminal prosecution of the guilty parties and—it goes without saying!—their personal responsibility for damages. But after all, many of our citizens have so little awareness of what they are doing to nature that their excuses are frequently accepted without any repercussions. What has to be done?

[Salykov] Our committee advocates the affirmation of the priority of common human values, the inclusion of ecological awareness in education and upbringing, starting from childhood, and the cultivation of a new and modern attitude toward nature. Of course, we are not operating in a vacuum; events of recent years have given many people an awareness of what we have and of how backward we are in this sphere. We are not hopelessly backward, however, because we can still correct the situation by working with the world community, especially now that our country is party to 55 international ecological programs. We legislators, however, intend to raise the level of this participation by several orders of magnitude, so to speak. The main thing is that we have new ideas and a new view of consumption and social concerns: We must not allow anyone to injure the health of people and their descendants and of all forms of life, and we must be guided by the standards of global morality. This will be guaranteed by law and by the law-governed state we are establishing at this time. Democratic power will soon be in the hands of the soviets elected by the people. They will decide where production units should be located and how natural resources can be used intelligently.

[Aleynik] Now you have steered our dialogue to the discussion of this major issue. We are still guilty of the disgraceful treatment of the wealth with which nature has endowed us. We have had a particularly disastrous effect on non-renewable resources. As a former mining engineer, you must know of outrageous contradictions in the use of mineral resources. Do you remember the man-made mountains in Soligorsk, Solikamsk, Nevinnomyssk, and dozens of other cities? And what about the lunar landscapes of the "world's biggest" coal and ore pits? Do you remember the absolute lack of contact between the departments of metallurgy, construction materials, and the chemical industry? In many countries, however, crude minerals have been used by almost 100

percent, so to speak, for a long time. They are put to work for the derivation of many chemical elements, plastic, and a variety of construction materials. In view of the fact that the committee you head, by virtue of its name, is supposed to be just as concerned about the rational use of natural resources as about ecology, I feel completely justified in asking you directly what you legislators are doing in this sphere?

[Salykov] A sound ecological policy and the rational use of natural resources are the two wings of our country's economic and social life, and both are equally responsible for pulling it out of the morass of stagnation. We are simply obligated to make the move to an ecologically intelligent economy. We made the decision to form a mining committee to serve as the chief adviser to the administration and the Supreme Soviet on the extraction, mining, and consumption of underground and surface resources. Finally, we must decide the structure of the system for the state management of resource use. The committee has asked the USSR State Committee for the Protection of the Environment for its thoughts on the matter.... At this time, more than 15 billion tons of rock are extracted and processed in the USSR each year, we produce 90 percent of our industrial product from mineral resources, we spend two-fifths of all capital investments in industry on the development of this sphere, and we are using almost one-third of all production assets and one-fifth of the labor force in the operation of the crude mineral resource complex. In short, the protracted underestimation of the importance of the efficient and comprehensive use of crude resources gave rise to several serious social and economic problems that must be solved as quickly as possible. This is also one of the main ways in which the country can overcome its ecological difficulties. Here is what our committee thinks: Surmounting the departmental approach to the use of national resources will necessitate radical changes. We legislators regard this as our main objective.

[Aleynik] At this time the exploitation of resources by mining enterprises, and also by others, follows approximately this pattern: Choose the most accessible sites, even if grass will never grow there again....

[Salykov] The situation will probably be complicated even more by the transfer to regional cost accounting in this sphere of the economy. The expansion of the rights of enterprises to exploit deposits which are public property might be simply disastrous for the entire society. The departmental approach to the use of raw materials will now be combined with a regional approach, which will put regional interests above statewide concerns. This is why the mining committee of the USSR State Committee for Science and Technology must be the main adviser to the government. After a thorough investigation of the state of affairs in the most highly developed countries, we concluded that radical improvement in the use of mineral resources will probably necessitate a single set of government regulations covering their extraction on a goal-oriented scientific-technical, ecological, economic, and legal basis. It will be particularly

important to coordinate all of this with social issues and assign priority to humanitarian considerations: above all, the indisputable value of each human life.

[Aleynik] I think it will take more than economic changes to finally reach the hallowed threshold of the era of completely waste-free industry and to stop depleting non-renewable resources. It will take a humanitarian reversal, perhaps the very one our brilliant countryman Vladimir Ivanovich Vernadskiy spoke of in his work on the noosphere.

[Salykov] The contribution of our country, with its vast territory and industrial potential, to the cause of the global survival of mankind will continue to grow. After all, emissions of harmful substances, sewage, and the pollution of the land, if they continue at the present rate, could cause negative, and already irreversible, changes in the global ecological situation in the near future. The growing movement in defense of our common European home and our country's 30 or so joint ecological programs with the Americans give us hope.

[Aleynik] Are we finally ready to make use of the conservation experience of those who are ahead of us on this road? Is this the time for specific action?

[Salykov] By 1995 we have to supply the population of the entire country with clean drinking water. It is time to use every channel to establish contact with highly developed countries so that we can borrow their technology for the purification of waste and sewage and the harmful emissions of production facilities and motor vehicles and increase the safety of nuclear power plants by several factors. There is no end of work to be done! The problems caused by the Chernobyl disaster must be solved in a separate program. We have requested a review of the national power engineering program from the standpoint of the possibility of using alternative sources of energy on a broader scale: wind, solar, tidal, etc.

[Aleynik] At this time, we are still lamenting the changes for the worse in the face of the earth and the disappearance of rare birds, animals, plants, and fish, but in my journalistic travels to Komsomol and shock "construction projects of the century," I saw how they drove people away from their natural habitat....

[Salykov] The Academy of Social Sciences of the CPSU Central Committee recently held a seminar on ethnic issues. I headed the section on "Ecology and Nationality" there and realized that the issues raised by members of small ethnic groups with regard to their survival must be resolved without delay. Otherwise, we will simply be too late and will have to live with the tragedy of the disappearance of whole ethnic groups.... Our committee inserted a special point in the resolution on urgent measures for the ecological recovery of the country: The small native ethnic groups of the North, Siberia, and the Far East are to be guaranteed the territories of traditional resource use, not subject to industrial development, this year. Of course, this is only on paper at this

time, but I think it will soon become the deciding factor in the survival of many ethnic communities.

[Aleynik] Am I correct in assuming that the qualitative perestroika of ethnic policy will primarily entail the disentanglement of the almost hopelessly tangled knots of socioeconomic and ecological conflicts caused by the authoritarian system of administration, so that the interests of the different nationalities inhabiting our republics can finally be upheld?

[Salykov] It is time for everyone to realize that the individual and the ethnic group are integral parts of all nature and, for this reason, cannot be isolated from nature or accept the biases of the technological world created by the family of nationalities. Many proposals have been submitted with regard to the creation of national-ecological councils in the republics and an ecological council of the USSR, the establishment of the "Green Cross" (by analogy with the Red Cross rescue and relief organization), and the publication of an ecological atlas of the country and a unionwide ecological weekly. We must make broader use of the possibilities of UNEP—the United Nations Environmental Program. We need broader dialogue with all ecological movements and associations in the country and the world and absolute honesty in our communications with the people of our native land who are now on the dangerous verge of ecological crisis. We can only surmount our common problems through common effort.

### Goskomstat's New USSR Environment Statistical Handbook Reviewed

90US0476A Moscow *EKONOMIKA I ZHIZN* in Russian No 3, Jan 90 p 24

[Book review by A. Valentey of USSR Goskomstat statistical collection: "On the Ecology—In Unvarnished Form"]

[Text] I am certain that this book will become a bibliographic rarity as soon as it gets to the store shelves. I am not talking about a novel of a world-renowned writer, but about the statistical collection "Environmental Protection and Rational Utilization of USSR Natural Resources." The author—USSR Goskomstat. They have finally stopped hiding ecological statistics under various "stamps."

The data presented in the collection worry, terrify, warn, and instill hope. How is it not an enthralling tale?

How can the fate of Baykal and Lake Ladoga not worry us? That is why individual chapters are devoted to them in the collection.

It instills hope that from 1986 to 1988, breathing nevertheless became somewhat easier. Over this period, the discharge of harmful substances from stationary sources was reduced 10 percent, but all the same constituted a full 61.7 million metric tons. Add to these yet another 35.8 million metric tons of harmful substances in the atmosphere—the contribution of automotive transportation—and the picture is not nearly as cheerful as we would want.

It is also cause for alarm that one out of every five urban dwellers (and this is about 40 million people) is residing in one of the 68 cities in which the level of atmospheric pollution is particularly high.

Data are provided on the population's morbidity level in certain cities, gotten by the USSR Ministry of Health by computer application. There are practically no analogies for such information in other countries.

Of course, the collection also has shortcomings; its compilers do not hide this. Yet something should be said about the chief shortcoming: A printing of 36,700 is too small for the first open ecological collection.

"We understand that, but we can do nothing about it," says V. Uspenskiy, deputy chief of the USSR Goskomstat informational-publication center. "We printed 1,700 in our printing plant, and the other 35,000 were printed at the "Finances and statistics" publishing house. Unfortunately, it is uncompromising, explaining everything as a paper shortage. I note that all the income from the issue remains with the publishing house, but our center, I emphasize, is self-financing, and is getting nothing. Incidentally, the printing of practically any of our collections could, as a minimum, be doubled."

The weekly *EKONOMIKA I ZHIZN* offers to publish USSR Goskomstat data about the ecology on a regular basis.

The next publication of the collection is envisaged in 1991.

The publication of the statistical collection "USSR Forest Resources" is planned for 1990; it will present detailed information on the state of the country's forest resources, their utilization, and preservation.

### From the statistical collection

#### Volume of waste water discharge into the Lake Baykal basin (in millions of cubic meters)

|   | 1985 | 1986 | 1987 | 1988 |
|---|------|------|------|------|
| Total waste water discharge into water bodies (not including water specially collected) | 757  | 663  | 261* | 252  |
| Including clean to standards (not requiring treatment) and treated to standards         | 633  | 597  | 154  | 61   |
| Polluted (untreated and insufficiently treated)   | 124  | 66   | 107  | 191  |
| Of those, untreated   | —    | —    | 3    | 7    |

\*In 1987, the Gusinoozersk GRES was converted from a direct-flow to a circulating-flow water supply.

In 1988, the discharge of polluted waste water by the Baykal Pulp and Paper Combine [BTsBK] constituted 77 million cubic meters (40 percent of the total polluted effluents discharged in the region); the Ulan-Ude city sewer system, 57 million cubic meters (30 percent); the Selenginsk Pulp and Cardboard Combine, 12 million cubic meters (6 percent), and the Gusinoozersk GRES, 6 million cubic meters (3 percent).

In 1988, along with waste waters, approximately 700 metric tons of nitrates were discharged into Baykal; of

these, almost 500 metric tons are from the Ulan-Ude sewer system; 13,000 metric tons of chlorides, half of which come from the Baykal Pulp and Paper Combine.

#### Aerosol Pollutant Levels for Major Urban Areas in 1988

90US0562C Moscow ARGUMENTY I FAKTY in Russian No 6, 10-16 Feb 90 p 3

[Table by USSR State Committee for Statistics]

[Text]

**Discharges of Harmful Substances Into Atmospheric Air From Stationary Sources in Some Cities in 1988  
(thousand tons)**

|                 | Total | including |                    |                     |                 | carbon monoxide |
|-----------------|-------|-----------|--------------------|---------------------|-----------------|-----------------|
|                 |       | solid     | gaseous and liquid | sulfurous anhydride | nitrogen oxides |                 |
| Alma-Ata        | 47    | 10        | 37                 | 16                  | 3               | 15              |
| Arkhangelsk     | 85    | 20        | 65                 | 45                  | 5               | 13              |
| Ashkhabad       | 7     | 4         | 3                  | 0.5                 | 0.5             | 1.5             |
| Baku            | 421   | 163       | 258                | 18                  | 16              | 49              |
| Bratsk          | 158   | 41        | 117                | 21                  | 6               | 85              |
| Volgograd       | 228   | 42        | 186                | 38                  | 19              | 60              |
| Vilnyus         | 34    | 2         | 32                 | 19                  | 4               | 5               |
| Dzhambul        | 107   | 32        | 75                 | 52                  | 13              | 3               |
| Donetsk         | 178   | 22        | 156                | 31                  | 7               | 110             |
| Dushanbe        | 31    | 12        | 19                 | 6                   | 4               | 8               |
| Yerevan         | 52    | 5         | 47                 | 15                  | 9               | 11              |
| Zaporozhye      | 267   | 70        | 197                | 25                  | 14              | 147             |
| Irkutsk         | 94    | 29        | 65                 | 29                  | 8               | 26              |
| Kiev            | 70    | 12        | 58                 | 19                  | 22              | 5               |
| Kemerovo        | 122   | 37        | 85                 | 26                  | 28              | 21              |
| Kishinev        | 31    | 4         | 27                 | 11                  | 6               | 5               |
| Krasnoyarsk     | 259   | 78        | 181                | 39                  | 13              | 115             |
| Leningrad       | 236   | 46        | 190                | 74                  | 47              | 41              |
| Magnitogorsk    | 849   | 170       | 679                | 84                  | 34              | 548             |
| Mariupol        | 777   | 113       | 664                | 54                  | 30              | 573             |
| Minsk           | 112   | 10        | 102                | 30                  | 17              | 41              |
| Moscow          | 312   | 30        | 282                | 70                  | 99              | 28              |
| Mogilev         | 115   | 7         | 108                | 67                  | 7               | 22              |
| Novokuznetsk    | 833   | 136       | 697                | 90                  | 34              | 562             |
| Odessa          | 88    | 19        | 69                 | 15                  | 5               | 27              |
| Riga            | 37    | 9         | 28                 | 9                   | 2               | 9               |
| Tallinn         | 41    | 7         | 34                 | 20                  | 4               | 6               |
| Tashkent        | 50    | 16        | 34                 | 2                   | 5               | 19              |
| Tbilisi         | 42    | 7         | 35                 | 4                   | 3               | 22              |
| Ust-Kamenogorsk | 143   | 24        | 119                | 69                  | 12              | 36              |

**Discharges of Harmful Substances Into Atmospheric Air From Stationary Sources in Some Cities in 1988  
(thousand tons)  
(Continued)**

|             |     |    |     |    |    |     |
|-------------|-----|----|-----|----|----|-----|
| Ufa         | 304 | 9  | 295 | 72 | 25 | 36  |
| Frunze      | 74  | 20 | 54  | 36 | 8  | 9   |
| Chelyabinsk | 427 | 94 | 333 | 60 | 29 | 210 |

**Table Ties Morbidity Rates to Air Pollution for 1987-88 Period**

90US0562D Moscow SOVETSKAYA TORGOVLYA in Russian No 2, 1-15 Feb 90 Special Edition p 8

[Unattributed report: "What We Breathe"]

[Text] Harmful substances discharged into the air basin of the Russian Federation in 9 months of 1989 decreased by 2 million tons (by 7 percent) as compared with the corresponding period of last year. Discharges of solid substances declined by 10 percent and of gaseous and liquid substances, by 5.5 percent.

At the same time, more than 5,000 enterprises (27 percent), which pollute the atmospheric air of RSFSR cities, increased discharges by more than 1 million tons.

There was a particular increase in discharges into the atmosphere of the following: Smolenskaya GRES [State Regional Electric Power Station], by 11,100 tons (27

percent); Nazarovskaya GRES (Krasnoyarsk Kray), by 7,100 tons (13 percent); Ryazanskaya GRES, by 6,500 tons (5 percent); Dorogobuzhskaya TETs [Heat and Electric Power Station], by 4,600 tons (8 percent); the entire USSR Ministry of Power and Electrification and the Kirovograd Copper Smelting Combine imeni Kirov (Sverdlovsk Oblast), by 13,999 tons (21 percent) and the Krasnouralsk Copper Smelting Combine, by 15,900 tons (26 percent)—both of the former USSR Ministry of Nonferrous Metallurgy; the Slantsy Cement Plant of the former USSR Ministry of the Construction Materials Industry, by 9,500 tons (40 percent); the Sterlitamak Soda Production Association of the former USSR Ministry of the Chemical Industry, by 27,000 tons (1.5-fold); the Kholm Pulp and Paper Plant of the USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry (Sakhalin Oblast), by 1,400 tons (1.9-fold).

An increase in discharges into the atmosphere occurred on eight RSFSR territories, including the most significant in Arkhangelsk, Smolensk, and Kalinin oblasts.

**The Population's Morbidity in Some Cities With Increased Environmental Pollution  
ratio to the average level accepted as unit in 122 studied cities**

| Cities                                    | Children's Diseases |      |                          |                                      | Adults' Diseases   |       |              |                          |
|---|---------------------|------|--------------------------|--------------------------------------|--------------------|-------|--------------|--------------------------|
|   | blood               | eyes | upper respiratory tracts | other diseases of respiratory organs | Tcmalignant tumors | blood | hypertension | upper respiratory tracts |
| <b>Arkhangelsk</b>                        |                     |      |                          |                                      |                    |       |              |                          |
| 1987                                      | 6.88                | 1.64 | 1.44                     | 2.95                                 | 0.98               | 6.59  | 0.81         | 1.51                     |
| 1988                                      | 6.41                | 1.00 | 1.40                     | 2.06                                 | 1.13               | 5.87  | 0.64         | 1.49                     |
| <b>Novokuybyshevsk (Kuybyshev Oblast)</b> |                     |      |                          |                                      |                    |       |              |                          |
| 1987                                      | 1.32                | 2.06 | 1.87                     | 1.03                                 | 2.97               | 1.81  | 1.66         | 1.67                     |
| 1988                                      | 2.27                | 1.05 | 0.95                     | 1.18                                 | 3.12               | 6.37  | 2.08         | 1.98                     |
| <b>Berezniki Perm Oblast</b>              |                     |      |                          |                                      |                    |       |              |                          |
| 1987                                      | 8.52                | 3.02 | 1.53                     | 2.15                                 | 1.26               | 5.41  | 4.64         | 1.67                     |
| 1988                                      | 8.35                | 2.75 | 1.54                     | 2.00                                 | 1.73               | 6.13  | 4.44         | 1.74                     |
| <b>Perm</b>                               |                     |      |                          |                                      |                    |       |              |                          |
| 1987                                      | 0.63                | 1.23 | 1.04                     | 0.42                                 | 0.84               | 5.62  | 0.75         | 1.02                     |
| 1988                                      | 3.42                | 0.87 | 0.89                     | 1.03                                 | 0.96               | 4.33  | 0.75         | 0.87                     |
| <b>Sterlitamak (Bashkir ASSR)</b>         |                     |      |                          |                                      |                    |       |              |                          |
| 1987                                      | 3.87                | 1.96 | 0.94                     | 0.80                                 | 0.39               | 5.44  | 1.92         | 0.57                     |
| 1988                                      | 1.91                | 1.76 | 0.83                     | 0.85                                 | 0.44               | 3.76  | 2.63         | 0.77                     |
| <b>Kremenchug (Poltava Oblast)</b>        |                     |      |                          |                                      |                    |       |              |                          |
| 1987                                      | 8.53                | 1.62 | 1.61                     | 1.06                                 | 0.83               | 0.73  | 1.79         | 1.86                     |

| 1988                           | 7.42 | 2.00 | 1.42 | 0.78 | 0.97 | 0.77  | 2.02 | 1.82 |
|--------------------------------|------|------|------|------|------|-------|------|------|
| <b>Cherkassy</b>               |      |      |      |      |      |       |      |      |
| 1987                           | 1.69 | 1.63 | 1.26 | 0.95 | 0.97 | 0.00  | 1.97 | 2.28 |
| 1988                           | 5.31 | 1.55 | 1.50 | 2.14 | 0.90 | 1.00  | 1.44 | 2.54 |
| <b>Chirchik (Uzbek SSR)</b>    |      |      |      |      |      |       |      |      |
| 1987                           | 2.03 | 0.82 | 1.42 | 1.49 | 0.97 | 7.85  | 5.15 | 1.48 |
| 1988                           | 2.52 | 0.77 | 1.44 | 0.59 | 1.22 | 12.95 | 4.30 | 1.29 |
| <b>Chardzhou (Turkmen SSR)</b> |      |      |      |      |      |       |      |      |
| 1987                           | 3.28 | 3.53 | 0.58 | 0.10 | 1.27 | 0.86  | 0.30 | 0.42 |
| 1988                           | 5.92 | 2.89 | 0.64 | 0.06 | 1.49 | 0.83  | 0.21 | 0.53 |

The level of pollution of the atmospheric air in the indicated cities continues to remain high. In Arkhangelsk average annual concentrations of methyl mercaptan (highly toxic substance) exceed maximum permissible norms eightfold, carbon disulfide and sulfuric acid in Berezniki and hydrogen fluoride in Chardzhou, two- to threefold, and benzapyrene in Perm, fivefold.

### Lemeshev to Head New Moscow Ecological Institute

90US0633B Moscow SOVETSKAYA ROSSIYA in Russian 3 Mar 90 Second Edition p 6

[Article by N. Lukyanova: "An Institute Has Been Established"]

[Text] The Institute of Ecology has been created in Moscow. It will operate under the aegis of the All-Union Cultural Foundation as a cost-accountable self-financed organization.

"Many regions of the country today are in a critical state, but Russia as a whole is an ecological disaster zone," says Professor M. Lemeshev, the institute's general director, doctor of economic sciences, and United Nations expert on the environment. "A new danger is the penetration onto Russian territory of Western technological schemes that have not been planned in consideration with Russia's natural conditions. In particular, a number of joint enterprises that are ecologically insecure are already being created in Siberia. Unfortunately, the environmental-protection agencies are incapable of guaranteeing reliable monitoring, frequently as a result of the shortage specifically of skilled cadres. And yet the forces of specialists in various areas of expertise are concentrated in Moscow and the regions, and those forces could carry out, on the basis of work orders from the institute, the necessary scientific-research, experimental-design, and production operations."

The Institute of Ecology is being assigned the following tasks: the inventorying of the harmful projects in the national economy; the production of instruments and reagents to be used by the time-responsive ecological expert services; the introduction into industry of ecologically pure technological schemes; the propagandizing of

ecological knowledge; the training of cadres; and international cooperation in the area of the ecology.

### Chairman on Moscow Environmental Committee Program, Difficulties

90US0476A Moscow VECHERNYAYA MOSKVA in Russian 23 Dec 89 p 2

[Interview with A.I. Kudin, chairman, Moscow City Committee for the Protection of Nature by D. Gay: "We Will Stand Our Ground"; date, place not given]

[Text] The city committee for the protection of nature [Goskompriroda] was created about a year ago. Goskompriroda Chairman A.I. Kudin talks to us about what it has managed to achieve in that time, and what it has not managed to do.

[Correspondent] Aleskandr Ivanovich, a year is a fairly long period of time. Tell us frankly: Are you satisfied with the committee's activity and with your own work?

[Kudin] I took on this work with the full understanding that it would be difficult. The city's ecological potential has practically been exhausted; I clearly understood the unweakened dictate of the ministries and departments, the indecision and inertia of the city services, the failure of many to understand the disaster threatening us. But I did not expect it to turn out to be so difficult. In any event, I had hoped to change the situation for the better.

[Correspondent] And now what, you do not believe in such a possibility? A little short on optimism?

[Kudin] It is not a matter of believing or optimism, but of the realization of the actual ecological picture, and it is extraordinarily alarming.

[Correspondent] All the same, let us analyze the work of Moskompriroda. I write on the topic of the ecology and I note that people are beginning to listen carefully to the committee in Moscow. You are gaining authority...

[Kudin] That is undoubtedly so, but unfortunately, far from everyone is listening, particularly the leaders in Mossoviet responsible for the ecology. As they say, we will take up this material at a later date. But for the time being, a few words about what has been done.

First and foremost, we have managed to create a collective. The majority of my colleagues are people who feel for the cause, patriots of the city, and that is already a great deal. They have begun to bring structural changes to the process of the work: We made 7 departments out of 17. Practice shows that it will be better like that. One such expanded department is directed toward coordinating activity in science and technology, and the development of a strategic line. A different department will be in charge of expert analysis and the economics of natural resources utilization. The economics of natural resources utilization, the mechanism of which will begin to work starting next year, is not only the introduction of enterprises' and organizations' mandatory payments for land, water, etc. This is not some sort of quitrent, but a system for redistribution of all norms and indices for the benefit of the ecology. A nature protection foundation will also begin forming. The third department also includes an inspection service...

What else has been done? We determined the circle of scientific organizations working for the ecology. There are 75 of them in Moscow. We have begun to look for points of contact with them, and we have already agreed on cooperation with a number of institutions. Our relations with public formations have become closer. We see in them genuine allies. We are in constant contact with the press, radio, and television, and issue EKOLOGICHESKIY BYULLETEN on a regular basis. We have introduced a round-the-clock ecological "ambulance," and quickly get to locations on signals from Muscovites.

Taking stock of battery production in the capital's enterprises was an important step. There are 900 of them. It is a depressing picture: The wastes from batteries are high, and they are almost not subject to purification. Judge for yourself: Every day 3 metric tons of such wastes with heavy metal salts get into Moscow's rivers and bodies of water.

Moscow's foundries were also inventoried. And here you may roll your eyes: Of the 117 production lines, only 32 are included in the corresponding statistical reports, that is, 32 are known. The remainder are working somehow on an illegal basis. What kind of attention to the ecology is this... Incidentally, one-fifth of the castings do not go to meet Moscow's needs. The analysis of major and minor power production plants conducted was no cause for rejoicing.

[Correspondent] You have not yet said a single word about automotive transportation.

[Kudin] Oh, a touchy question. Automotive transportation remains, as ever, the main source of air pollution. Some 800,000 motor vehicles, including over 500,000 private vehicles, discharged 800,000 metric tons of polluting substances into the atmosphere this year. One ton per vehicle! And it is no accident that one-fifth of all of Muscovites' illnesses are related to the state of the environment. It is clear to everyone what this can lead

to. After all, about 2.2 million people live in the discomfort zone (the center, eastern, southeastern, and northwestern parts of the city). There are rayons with even more grave comfort indices within this zone.

[Correspondent] What can be done, how can the situation be corrected? Surely it is already impossible to put up with it. [Kudin] The 9th Mossoviet session, which took place this summer, adopted primary measures for the recovery of the ecological situation in the city. A plethora of sensible statutes were written into the decision. But will what has been planned be realized? There is doubt, but personally, I am encouraged by the position of Moscow Mayor V.T. Saykin, who was among the initiators of that extraordinary session. If only the other Mossoviet leaders would treat the urgency of ecological problems with such understanding... Unfortunately, as ever, our cultural level is low, in the given case, our ecological cultural level. We do not realize the full urgency of the situation with the state of the air, water, and soil. My colleagues and I are terrified not only by the empty shelves and chronic deficit of products and goods. We are terrified by indifference toward and neglect of nature's needs. Every day, every hour we are cutting away the branch on which we sit, hoping for that notorious "off chance."

[Correspondent] I share your pain, your cri de coeur. But after all, there exist objective reasons as well. Everything which has been destroyed over decades cannot be corrected in one year.

[Kudin] Oh, "objective reasons".... How much can be hidden behind them... Let us take automotive transportation, the veritable scourge of Moscow. Foreign vehicles have long been produced with electronic engine control, equipped with systems for neutralizing gaseous emissions. Gasoline-powered engines have clean-burning combustion chambers; exhaust gas recirculation is envisaged for diesel engines. All of this ensures practically clean exhaust. Well, are our ministries, departments, and car plants unaware of this? They are just not paying any attention to it. They are worried by their plan, their bulwark.

Well, let us say that the problem cannot be solved all at once. For the time being there is only talk about creating ecologically clean engines. But why is there no ray of hope in solving the issues which require neither special expenditures nor additional efforts? Snow, for an example. How many times has Mossoviet warned that only clean snow may be thrown into the Moscow River, and only in strictly designated locations. On this score there is a special order number 1627 dated 22 August 1988. And what sort of snow goes into the Moscow River now? Gray, yellow, pink, whatever the snow removers gather on the streets, containing god knows what components.

A brief author's comment on what A.I. Kudin has said. At a party gorkom press conference the day before yesterday, A.S. Matrosov, Mossoviet ispolkom deputy

chairman, literally said the following: "More harm is done if the dirty snow stays on the soil than if it is thrown in the Moscow River." The journalists in attendance did not believe their ears. Goskompriroda Deputy Chairman Ye.V. Minayev had to delicately correct the Moscow gorispolkom deputy chairman: the damage from such snow disposal in the river is beyond doubt.

[Correspondent] What concrete steps are planned, and what is already being realized in the defense of the ecology?

[Kudin] The "Ekotekhpron" association has been created under the Glavmoszhilinzh [Main Moscow housing engineering]. It will become responsible for processing urban waste. An association is being created which will produce equipment for cleaning harmful discharges into the atmosphere. In general, I am convinced that it is necessary to organize a special branch to be in charge of all equipment and mechanisms designated for the ecology.

With the assistance of other services, Moskompriroda will now create overall city monitoring. The joint Soviet-Italian enterprise "Prima" is also participating in this important work.

In the coming weeks we want to shut down one of the shops of the Dorogomilovskiy Chemical Plant. Its presence can no longer be tolerated. Next in line is a photographic plate factory. In total this year we halted the work of 72 sectors and production lines.

Among our impending plans are taking an inventory of all welding production lines and dumps. We want to check the state of minor rivers and Moscow's forest-park resources.

[Correspondent] Aleksandr Ivanovich, let us get back to the beginning of our talk. I get the feeling that for reasons which do not depend upon you, it is not easy for you to do your work. Or is that just how it struck me?

[Kudin] You are not mistaken. We have begun to prevent certain people from living in peace. Hence the growing pressure on us, the attempts to "twist our arms."

We conducted an examination of the General Plan for Moscow's development, and made a fair number of substantive comments. This was not to everyone's taste. An examination was conducted in the new residential rayons Butovo, Brateyevo, Solntsevo, Novo-Kosino, Zhulebino, and the Northern Industrial Zone. We have many comments. The majority of them are related to the project plans and construction caused by the previous outmoded approaches to resolving city construction problems. These approaches practically did not take ecological aspects into consideration.

What is to be done now? Ways out should be sought without delay, and they do exist. Why do I speak so confidently? In the final analysis, meetings with the Mossoviet ispolkom leaders, Glavmosarkhitektura [Main Moscow Architecture], and stormy debates impell

the specialists to find sensible solutions to the urgent problem without harming the ecology.

The question arises: Is it really worth it to Moskompriroda? Having "thrown down the gauntlet" to various city services, we risk winding up alone, and waging a hopeless, dead-end fight. We are defenseless in the social and legal sense. There is still no statute on our committee, just as there is no law on protecting nature, as there is no State Program for the ecology. These are links of the same chain.

We want to give Mossoviet an objective, honest ecological picture and see its concern in correcting the situation. Until now, it has not always shown such concern.

We are not groundless idealists; we understand full well and share the burdens of Mossoviet. Let us look the truth straight in the eye—enormous concerns have now fallen to Mossoviet. The city has been neglected, and it cannot continue that way. Thus it is all the more impermissible to brush aside ecological problems, for they are like delayed-action mines: They will explode sooner or later.

In any case, for myself I have decided that I will stand my ground, however it turns out for me.

#### **Moscow Electric Plant Construction Said To Violate Environment Impact Findings**

90US0564A Moscow ARGUMENTY I FAKTY in Russian No 7, 17-23 Feb 90 p 3

[Article by Yu. Sysoyev, L. Sokolchik, and V. Shkatov: "Clouds Over the City . . ."]

[Text] In connection with the continuing construction of the Northern TETs, we once again appeal to the government, this time through ARGUMENTY I FAKTY, with questions raised at numerous meetings and assemblies, resolutions signed by more than 300,000 residents of the Moscow region and 84 people's deputies.

We are building a law-governed state. So who was it who, in violation of the USSR Supreme Soviet resolution of 3 July 1985 "On the observance of environmental protection legislation requirements" ordered the financing for the construction of the gigantic energy plant before an environmental impact study had been made? Who overruled the findings of the RSFSR State Committee for Environmental Protection study conducted from April to September of 1989 by major specialists? Why has the current commission of the USSR State Committee for Environmental Protection been formed in blatant violation of the basic legal principle for organizing extradepartmental expertise? Disproportionately represented are the Energy Ministry and organizations involved in the preparation, coordination, and realization of the project, such as Deputy Minister A. D'yakov, Northern TETs director N. Sandler, general director of the Moscow Energy Organization N. Serebryanikov, and many others. Why is the commission headed up by E. Minayev, who in 1980 worked in Gosstroy and who

recommended not creating an SZZ (health protection zone) for this plant? At the same time, the commission has on it few scholars from any extradepartmental scientific research institutes involved with the region's ecology, nor is there a legal expert.

Why are the destinies of millions of people being decided, as before, by a "majority" hand-picked by the departments? Why, finally, wasn't the round-the-clock construction halted at least long enough for the commission to do its work?

We feel it is essential that there be a unified, scientifically based program for the development of energy and heat supplies for Moscow and the oblast that provides in particular for the removal of 200 power-consuming enterprises to outside the region, the introduction of energy-saving technologies, the improvement of heat-insulating means of construction and communication, the siting of new sources of electric power on the oblast's periphery, it being impermissible to bring them closer to densely populated rayons. Today Moscow, which produces 1.5 times the electric power the city itself needs and supplies 40% of Podmoskovkiy's demand, is suffocating within a ring of 15 TETses that lack air-filtering equipment. We possess data proving that in many rayons the PDK has been exceeded for nitric oxide, sulphur, carbon monoxide, carcinogenic fuel emissions, and pentoxide vanadium. Oxygen deprivation is noticeable in the capital; after all, the Northern TETs intercepts the clean air coming in from outlying wooded tracts. Moreover, its supply of gas is provided at the expense of increasing the portion of combustible fuel oil at the city's other TETses.

The heating shortage that the Energy Ministry has predicted, which the residents assigned to the construction in the northern part of Moscow and the Mytishchi blocks presumably will feel, has been raised several times. Therefore we believe that the construction of the Northern TETs must be stopped and the plants already equipped reprofiled. As it is, their cost will exceed the projected cost (275 million rubles) by 2-3 times. Even the project itself is essentially sketchy and contains a great number of mutually contradictory changes and additions that never received proper legal approval. It does not take into consideration the summation effects of the TETs's harmful wastes with the background pollution. It does not provide for automatic control systems for the wastes across the board. It provides only for the clean-up of nitric oxide.

The real threat of additional pollution hangs not only over Moscow but also over Mytishchi, Kaliningrad, Losinyy Island, and reservoirs of drinking, ground, and underground waters. The status of Moscow's forest greenbelt has been violated (in 1973 the Moscow Soviet prohibited industrial construction here).

The builders are destroying the ancient village of Chelobit'yevo, which is part of a protected zone of a monument of 17th century history and culture—the Church of the Annunciation in the settlement of Tayninskiy.

We hope that the Soviet of Ministers and the people's deputies will not permit violations either of the new resolution of the USSR Supreme Soviet of 27 October 1989 "On urgent measures for the country's ecological recuperation."

Yu. Sysoyev is a member of the Expert Commission of the USSR State Committee for Environmental Protection. L. Sokolchik and V. Shkatov are members of Ecological Control, an organization in Kaliningrad, Moscow Oblast.

### Decision To Cancel Volga-Don Canal Viewed

PM2703140590 Moscow *IZVESTIYA* in Russian  
27 Mar 90 Morning Edition p 2

[Report by *IZVESTIYA* special correspondent Ye. Manucharova under the rubric "Returning to a Previous Item": "From a Sea of Lies to a Field of Rye"]

[Text] The 10-year struggle over the construction of the Volga-Don II canal has ended in a victory for science. The USSR State Planning Committee [Gosplan] State Expert Commission [SEC] has adopted a resolution which "recommends the mothballing of the construction of the canal to allow for the completion of work under way to construct social facilities."

The department's claims for R2 billion for the project were deemed unlawful. They were defined as unwarranted promises to "feed the region" as soon as the canal is commissioned. The recoupment period suggested by the planners was deemed unrealistic: It would take much more than 20 years.

The conclusions arrived at by the Gosplan experts are confirmed by decisions of the USSR State Committee for Environmental Protection, USSR State Committee for Construction experts, the USSR Ministry of the Fish Industry, and the USSR Academy of Sciences. People's deputies representing people in the Volga area also demanded that Gosplan immediately halt construction. A broad popular movement arose as a protest against the actions of the Ministry of Land Reclamation and Water Resources. A committee to protect the Volga was set up. The people's irreconcilable stance served as an extremely important argument for the SEC in its objections to the construction.

The experts' tours had shown that the population was not exaggerating the ecological danger of new canals. The state of affairs had also been correctly evaluated on the farms: There is no need at the moment to establish new irrigated areas in order to obtain more agricultural products in the Don-Volga mesopotamia—all that is needed is get the existing farms and their land into proper shape. The irrigation systems that were constructed in the past are of poor quality and one-third need to be reconstructed. The arable is in a bad state. Yields are extremely low on land that is already under irrigation. For instance, potato plantations provide less than one-third, grain fields 18 percent, and vegetable

plantations only 14 percent of the planned yields. The number of major facilities for the storage of products is small and entirely inadequate. For example: Farms have only 15 percent of the refrigerators they need. The inadequate infrastructure is leading to harvest losses. Experts have calculated that they amount to R1 billion. Given such incompetent management, it makes no sense to irrigate thousands and thousands more hectares.

There is another reason why the canal is harmful: the state of the Volga itself. In order to persuade the country that water can be permanently removed from the Volga basin, the creators of the canal included in the plan an unrealistic account of the river's water balance. But experts claim that in five years' time the spare volume will not only be totally exhausted, but there will already be a negative balance. And this will also spell death for the Caspian.

So the SEC's decisive conclusion was that "obtaining additional agricultural products on newly irrigated land through the construction of the Volga-Don II canal cannot at present be regarded as a priority area for the development of the agro-industrial complex."

But why is this only being written now, and not when the canal was originally thought of? Why did it take so long for common sense to reveal itself?

Let us consider the history of it. For seventy years the country was obsessed with giant projects and the cult of the future. The departments geared their expansion to this convenient ideology. As a result there emerged an idea whose deleteriousness is obvious today: that agricultural problems would be solved by diverting the northern rivers to the Volga, whose waters would spill over onto the Don-Kuban mesopotamia, thereby establishing one million hectares of artificially irrigated land—in the next century. In 1981 the SEC adopted a technical and economic scheme (there was no plan) for the Volga-Don II canal. Although it did specify an essential condition—that the waters of the Volga should be swelled and the canal should be brought into operation only if the entire "plan of the century" is fully implemented.

The department immediately started digging, without waiting for the canal plan to be made and approved. It did not let up even when the massive diversion of the northern rivers was prohibited by a CPSU Central Committee and USSR Council of Ministers decision. Scientists (including Gosplan experts), aware that it was inadvisable to interfere with nature on such a grand scale, had accumulated weighty evidence. And life itself was providing clear and persuasive evidence of the hazardous nature of the actions of the Ministry of Land Reclamation and Water Resources.

But canal construction continued.... It was then (a year ago), at an SEC session, that experts presented evidence that the construction was ecologically unsafe and economically inadvisable. Moreover, the country does not have the billions the Ministry of Land Reclamation and

Water Resources is asking for. The final decision was not taken at the time. The formal reason was that the SEC had not been presented with the entire plan, just the ecological part. But what was the real reason? Many interests were affected by the new decision. And it was unusual.

A year later the SEC was compelled to look again at the plan—with allegedly new explanatory material. The department claims had been sharply reduced, in terms of the volume of water and amounts of money and land required—it had all been cut by nearly two-thirds. But they failed to deceive the experts. At the last session it was shown that the new parameters for the canal would also be much more costly than the documents indicated.

So it all ended well: The claims on the Volga were prohibited.

#### What now?

At the SEC session the experts said that more than R100,000 million had been spent even before the project was authorized. Who is going to compensate the state for the losses? Volga and Don land has been excavated and river banks have been disfigured. Who is going to heal these wounds? The thousands of people who worked on the canal have wasted years of their lives. Who can bring them back? The Volga people are in a state of agitation; for a long time they have been uncertain about the future and about justice. Who is going to compensate for the moral cost?

The Volgograd public is now demanding ecological judgment on the creators of the canal. Should one be surprised about this or resist it? After all, it is hard to be a peaceful farmer without saying to those who have raped the land: "It is a long way from a sea of lies to a field of rye...."

#### Regional Environmentalists Create 'Public Ecological Court'

90US0633A Moscow *IZVESTIYA* in Russian 1 Mar 90  
Morning Edition

[Article under rubric "Valeriy Kornev Reports From Volgograd": "Ecological Court: A Public Ecological Court Will Operate in the Lower Volga Area"]

[Text] "The decision to create it," I was told by L. Savelyeva, chairman of the Volgograd Department of the Committee to Save the Volga, "was made by us at the conference of the socioecological association. This was brought about by the fact that, unfortunately, statements made in the press and public actions to protect the environment have been having only a slight effect. The departments, and sometimes also the local authorities, are continuing to ignore the warnings and the reasonable arguments. It is necessary for the law to go into effect."

The ecological court will be conducted with the participation of people's assessors. Those assessors will include

people's deputies, workers in the law-enforcement services, church representatives, and journalists. If the public court finds that there have been violations that are prosecuted according to the law, it will transfer the materials to the law-enforcement agencies.

"At the present time," L. Savelyeva said, "we have begun collecting the materials pertaining to the Volga-Don-2 Canal. They will be submitted to the first session of the ecological court."

### **Yaroslavl Rejects Nuclear Power Station Project**

*PM0404095790 Moscow SOVETSKAYA ROSSIYA  
in Russian 1 Apr 90 Second Edition p 1*

[Report by A. Solenikov, chairman of the board of the Yaroslavl branch of the Committee To Save the Volga: "Nuclear Power Station Abandoned"]

[Text] The Yaroslavl Oblast public's two-year struggle against the construction of a nuclear heat and electric power station, which the "Yarenergo" territorial administration and leaders of the oblast soviet executive committee [oblispolkom] were pressing for, has ended in victory. The CPSU oblast committee [obkom] and the oblispolkom [oblast soviet executive committee] adopted a joint resolution on the abandonment of the planning and construction of the nuclear power station and asked the USSR Council of Ministers to provide in the country's energy program for the construction of a gas-fueled energy facility in Yaroslavl Oblast.

The obkom bureau and oblispolkom cite public opinion and proposals by labor collectives, party, trade union, and Communist Youth League organization, and a public expert council on oblast energy problems. SOVETSKAYA ROSSIYA announced the setting up of the council last May under the oblast board of the USSR Union of Scientific and Engineering Societies in an article entitled "Get Independent Expert Opinion on the Project."

The council members came up with cogent conclusions on the economic, demographic, and ecological grounds for abandoning the funding of planning and survey work for the construction of the nuclear power station.

The council examined the "Nedra" ultradeep drilling association's plan for heating parts of Yaroslavl, Tутayev, Rybinsk, and other cities and settlements in the oblast based on the use of heat from subterranean water-bearing strata and the construction of water-circulation thermal power stations.

### **Local Official Inaction Faulted in Oka River Pollution Crisis**

*90US0633C Moscow TRUD in Russian 1 Mar 90 p 1*

[Article by A. Sugrobov, chief of the Administration for Overview of the Execution of Environmental-Protection Legislation, USSR Procuracy, under rubric "Alarming

Warning Message": "Danger Zone in the Center of Russia: It Will Become a Death Zone If Immediate Steps Are Not Taken to Save It"]

[Text] This river in Russia can actually become a drainage ditch if the accidents at its purification structures are not stopped. On 6 June 1989 sewage water got into the Oka. A few days later, the accident was repeated. The Oka proved to be polluted as far as Tula and TRyazan oblasts. Massive fish kills began, numerous complaints from citizens about the water quality began arriving, but even those circumstances did not alarm the leadership of the Orel Oblzhilkomzhoz [Oblast Housing and Municipal Services Department] or the city ispolkom.

A fire at the Rayonnaya substation had caused a power outage at the purification structures for more than a day, and an additional 30,000 cubic meters of sewage was released into the Oka. According to preliminary estimates, the damage from the pollution of the Oka and the fish kill has come to 1,116,000 rubles.

At a conference at the Orel Oblast Ispolkom to discuss ways to eliminate the consequences of the accident, workers from the municipal services and the city ispolkom, and Comrade A. F. Poryadin, RSFSR deputy minister of housing and municipal economy, asserted that, within the very near future, they would take the necessary steps to assure the accident-free operation of the purification structures in Orel.

But, as the expression goes, "not even a year passed" before the people of Orel were again overtaken by a calamity, and the culprit proved to be the same one as previously—the same oblzhilkomkhoz. This time, in the predawn hours of 22 January 1990, as a result of the settling of the ground, a break in the collector occurred, and approximately 40,000 cubic meters of polluted sewage water was dumped into the Oka. The latest in this series of investigations is currently being conducted by the Orel Oblast procuracy. The investigation is supposed to ascertain whether it will be at all possible to operate the purification structures in Orel, and what major technical, economic, and organizational steps must be taken to improve the ecological situation in the Oka drainage area and in Orel in particular.

But one cannot fail also to mention here the inconsistent position taken by RSFSR Goskompriroda [State Committee for Environmental Protection], that has limited itself only to informing RSFSR Council of Ministers concerning the circumstances surrounding the accident. The Orel Oblast procuracy is also working without any special exertion of efforts: a criminal case has been initiated, and the situation has been discussed reasonably and thoroughly at the board. The investigation of cases in this kind of category actually is complicated, but no delay (the case has been under investigation for more than six months) can be justified, inasmuch as the accidents are continuing. And the river, as well as the country as a whole, is being irreparably damaged.

RSFSR Procuracy has also failed to take effective steps against the persons guilty of violating environmental-protection legislation. We too have a share of the blame for this. However, purification structures cannot be corrected by initiating yet another criminal case. What is necessary first of all right now is to stabilize the ecological situation in Orel and to save the Oka from permanent misfortune.

**Podolsk Pollution Concerns Launch Paper's Environmental Campaign**

**Letter Highlights Podolsk Problems**

*90US0561 Moscow RABOCHAYA TRIBUNA in Russian 11 Feb 90 p 1*

[Letter from Ye. Zherdev, engineer; Yu. Shomin, chief of the Gidropress Experimental Design Bureau; V. Prokhorov, engineer at the eletromechanical plant; V. Pukhov, designer; V. Ryaznov, turner at the Plant imeni S. Ordzhonikidze; V. Bugriy, worker; R. Nikolayeva, engineer at the Cable Plant imeni K. Gotvald; N. Ivanova, engineer at the mechanical plant; G. Kuznetsova, designer, Podolsk: "The Health of the City Near Moscow is the Hostage of Departments"]

**[Text] Podolsk has long been called the industrial center of the localities near Moscow. But we do want to be proud of this. Tens of thousands of tons of substances poisoning the human body annually accumulate in the smog hanging over the city. Both carbon monoxide and nitric oxides are not the worst of them.**

In 1960 it was decided to stop further production growth in Podolsk. There were the same governmental decrees in the 1970's and the 1980's. What is the result?

The first decree limited the city's development to the level of 15 or 20 industrial enterprises. Subsequently, the figure approached 200. It is not surprising that the mass of discharges into the atmosphere in Podolsk exceeds 65,000 tons annually. The morbidity level is on the verge of disaster.

From 1986 to 1989 the Podolsk Sanitary and Epidemiological Station more than once passed decrees on halting the operation of enterprises with the most harmful discharges into the atmosphere—at the storage battery plant, the Mechanical Plant imeni M. I. Kalinin, the Minkroprovod, the cement plant, the fruit water plant, the industrial dump plant, the Podolsk Nonferrous Metal Plant, the meat combine, and others. However, many of these decisions proved to have a zero, or rather, a negative effect on the health of city residents.

The waters of the Pakhra and its tributaries are now unsuitable for bathing and drinking. The atmosphere is extremely heavy and no wind rose saves it.

The situation is also aggravated by the fact that the meat combine, the bakery, the vegetable base, and the knitwear factory are located next to storage battery, cable,

and chemical and metallurgical plants and the Mikroprovod Plant. That is, the effect on the human body occurs not only from outside. Harmful substances are primordially embedded in food products and clothing and workers at seemingly ecologically clean enterprises suffer the same health damage as workers at ecologically dangerous ones.

The city occupies an advantageous transport position—a river, a railroad juncture, and Simferopol and Warsaw motor directions. Plants are growing like mushrooms. But what kind of enterprises are these? For example, at the storage battery plant lead concentration at main work places exceeds the permissible limit 10- to 100-fold. At a distance of 1,000 meters from this enterprise lead exceeds maximum permissible concentrations 16.6-fold and is detected at the distance of up to 3 km. Tricresol and chlorobenzene exceed the permissible norm 6- to 8-fold in a radius of 3 km from the Mikroprovod and cement dust, 2-fold in a radius of 1.5 to 2 km from the cement plant.

We would like to add to this that about 7,000 Podolsk residents live in the sanitary protection zone of city enterprises. Moreover, existing city microrayons—Severnyy [Northern], Yuzhnyy [Southern], Parkovy [Park], Mezhshosseynyy [Interhighway], and Privokzalnyy [Railroad Station]—are in the vicinity of industrial enterprises. In a number of microrayons the dust load exceeds the background 10- to 30-fold and the Novosyrovskiy microrayon surrounded from all sides by a ring of plants is also being poisoned by the city dump used for warehousing household and industrial waste and radioactive ground.

Not only the giants of industry make, or rather, spoil the "weather." Small enterprises also help here. As a rule, nature protection policy leaves them in the background. Psychologically, for the public they are, so to speak, goals No 2. However, let us take, for example, the combine of the USSR Arts Foundation. Its discharges include cobalt, cadmium, and lead. Their content in the soil is 1.5- to 2-fold higher than maximum permissible concentrations and points to the chronic pollution of adjoining territories with heavy metals. Discharges of the Vtortsvetmet Plant include tin, lead, and other heavy metals. Last year the Podolsk Confectionery Factory so polluted the adjoining reservoirs with sewage that only by a miracle was disaster avoided. Many of the small enterprises are actively building up capacities and the flow of their motor transport is increasing. And all this is being done with the sanction of the Council of Ministers and the Moscow Oblast Executive Committee.

The results of such an attitude toward the city and its residents were predetermined in advance. Cases of radioactive contamination at the Podolsk Nonferrous Metal Plant, at the industrial dump in Kurilovo on the premises of the chemical and metallurgical plant, and in house No 64/1 on Roshchinskaya Street were uncovered last year. In all, there were nine such cases. We believe

that similar cataclysms occurred and will occur, because there is virtually no incoming inspection of arriving raw materials.

The situation is aggravated by the fact that in the city there is no preventive medical examination of the population, which would establish the effect of the polluted environment on health. It is difficult to determine the cause of a possible disease if, for example, the presence of two factors—radioactive and lead contamination of a locality—is exposed. For now prevention, basically, is reduced to ascertaining cases of lowered bodily resistance to diseases.

We believe that the fight for ecological cleanliness, in fact, is a fight against the administrative and command system of power. It is directly to blame for the fact that under conditions when the harmfulness of a specific enterprise is obvious it is impossible to attain a just solution of the problem.

Last December the executive committee of the city soviet held a session on ecology. Decisions were adopted. However, it is already clear right now that there are virtually no shifts. In the meantime nature is dying and destroying us.

#### FROM THE EDITORIAL STAFF:

This alarming letter calls for action. In "Postscript to the Issue" published on page 4 you will read what RABOCHAYA TRIBUNA intends to do.

Our correspondent received the following assignment: To find out in appropriate departments and organizations whether they are alarmed by the created ecological situation. What do they do in practice to defuse it?

#### Appeal for Environmental Information

90US0561 Moscow RABOCHAYA TRIBUNA in Russian 11 Feb 90 p 4

[Article by the brigade on duty (RABOCHAYA TRIBUNA, No 35): "Postscript to the Issue"]

[Text] The city of Podolsk near Moscow is not big—it has only about 200,000 inhabitants. It is small on the country scale. But, it turns out that it is big on the scale of the problem that has "ripened" on its territory—the problem of survival with the coming ecological catastrophe. (We published the letter from anxious Podolsk residents on the first page of today's issue).

The following aphorism has already appeared among the people: If we do not destroy each other with nuclear explosions, we will be wiped off the face of the earth by the waste of industrial activity. It would be more accurate to say: We will disfigure the face of the earth itself to such a degree that, as the saying goes, the mother will not recognize her own child. We are already disfiguring it—this is evidence of our barbaric ingratitude to Mother Nature at every step.

RABOCHAYA TRIBUNA proposes: Let us begin to approach the problem of nature protection in a business-like manner. And, to maintain order, we will try to count:

How much money in the budget of your republic, oblast, city, rayon, and, finally, your enterprise is allocated for nature protection measures? On what, specifically, was this money spent last year and last January?

What waste-free technologies have been introduced at your production facility? What has been done by your collective to help nature to withstand the onslaught of "civilization"?

How many organizations called upon to protect nature are in your city? What is the result of their activity? If there is no result, or it is negative, then why?

Finally, what do the procuracy and other law enforcement bodies called upon to follow the implementation of nature protection laws do? If, as they say, they "have not made anyone accountable" and the encroachment on the environment continues, is it not time to make these bodies themselves "accountable" to the people for tolerating those who encroach on our health and the health of our offspring?

Offensive-smelling pipes smoke, harmful discharges flow, and toxic chemicals are sprayed not only in Podolsk, in localities near Moscow, and in Moscow. Let us together—in rural and urban areas, at enterprises, on construction projects, and in institutes—search and think (and do!) how to pay back our heretofore unpaid debt to nature!

#### Lithuanian Environmental Group Plans Protests at Polluting Factories

90US0562B Vilnius SOVETSKAYA LITVA in Russian 1 Feb 90 p 3

[Article by Z. Mikalauskas, ELTA correspondent: "Again an Alarm Bell"]

[Text] Early in the morning bells began to ring and blows on metal rails were heard. This time it was near the artificial fiber plant. There the Atgaya Society organized an action directed against air pollution.

The posters prepared for the action by the society's members state that last year the enterprise dumped 5,749 tons pollutants—acetone, methyl chloride, ammonia, and others—into the atmosphere. In the blocks located in the plant's vicinity air pollution exceeds sanitary norms severalfold.

At an improvised press conference enterprise representatives discussed what was being done to reduce air pollution. With an increase in the production of composite, pneumotextured, combined, and other new threads it is possible to greatly reduce acetate silk production, to use less acetyl cellulose and acetone, and thereby to reduce environmental pollution significantly.

At the end of last year an alarm bell was sounded near the Banga Television Equipment Production Association. Although only 1 month has passed after this action, the city's largest enterprise has already managed to eliminate some uncovered shortcomings and to reduce water pollution. Atgaya has become convinced that the picket lines organized by it are of benefit. Therefore, an alarm bell will be sounded at the end of every month near enterprises most polluting the environment.

### **UkSSR: Introduction of 'Ecological Cost Accounting' System Proposed**

*90US0560B Kiev PRAVDA UKRAINY in Russian  
23 Jan 90 p 2*

[Article by V. Mogila, senior lecturer in continuing education for managers and specialists of the UkSSR Transportation Ministry: "Lessons of Self-Financing: What Is the Cost of Our Habitat?"]

[Text] The theme for this article was suggested to the author by a publication in PRAVDA UKRAINY of 13 December of last year, "Not a Step Without the Center?" by Doctor of Economics N. Yermoshenko, whose point was to relate closely the problems of ecology and self-financing.

Today the concept of the vital necessity of making peace with our habitat provokes no doubts. This critical problem cannot be solved merely with emotional appeals to saving our increasingly scarce nature and the traditional conciliatory fines for toxic wastes. Its roots are deep and tied in with production and consumption. There is no doubt that the planting of this slow ecological time bomb, whose mechanism is already ticking loudly, has been connected with the implementation of radical economic reform.

In the Ukraine the problem of protecting nature is especially acute due to the economy's intensive industrialization and chemicalization. What can a republic preparing to shift over to self-financing and not waiting around for overdue decisions from the center do?

Here there are two approaches: either we are going to continue to pollute our environment further, or we are going to cease this outrage by introducing ECOLOGICAL SELF-FINANCING structured around the objective functions of the law of consumer goods pricing.

The term "ecological self-financing," evidently, needs some clarification. We know that industrial self-financing came about historically. V. I. Lenin wrote: "...self-financing trusts and enterprises have been instituted precisely so that they might themselves be responsible for not entailing loss." Since any further economic disregard for the harm inflicted on the biosphere threatens an irreversible ecological blow to the economy and human health, the concept of "not entailing loss" takes on a wider meaning and special overtones in the economic "kitchen."

We have yet to create a unitary theory of ecological equilibrium for the system of "production-consumption" and the biosphere based on a purely human imperative: whatever is sound ecologically is also sound economically. In many countries of the West the defense of the environment has long been considered a principal national problems. West Germany has been working on the concept of adding an ecological dimension to the market economy and introducing an ecology tax. The government of the Netherlands was sent into resignation in 1989 for not solving the acute problems of environmental protection.

Self-financing itself is related to such concepts as cost, cost-price, price, and profit. Science has gained experience and knowledge in it but has done so at the expense of accounting for the ecological corrective to the concept of production's "not entailing loss." While criticizing capitalism for its ultra-greedy attitude toward nature for the sake of business, our apologists of "developed socialism" have failed to take a timely look at our own ailing nature. Even today the illusion that natural resources are nature's "free gift" to its offspring—to mankind—and that the biosphere can go on being a silent and bottomless repository for toxic wastes has not been completely relegated to the past everywhere.

The paradox is that the very "pricelessness" of nature because its conqueror's great misfortune. The basic motif to the majority of the outrages, defilements, and devastations have been first and foremost that very pricelessness of nature. Only the light and energy of the sun are gifts of nature anymore. For the rest we have to pay, because we know the true cost of natural resources, the cost to nature of engineering and technology, the price of polluting the biosphere. The term "payment for natural resources," which looks more like that traditional-conciliatory fine and bears almost no relation to the law of cost, has turned up in our economic mechanism. An enumeration of natural resources has not been determined, but the "gas of life"—atmospheric oxygen—does not pertain to it. In Donbass, for example, according to the evaluation of the UkSSR Academy of Sciences, the annual shortage of oxygen amounts of 130 million tons—the amount of oxygen used by more than 32 million people in the course of a year.

If we evaluate systematically our current economic mechanism, then we see that our production is trapped in a vicious circle of self-deception, and that the profit it creates is often illusory. Today any chemical or metallurgical factory or other enterprise poisoning the habitat returns to society a profit, a part of which goes to the budget. As a result of the pollution of elements of the natural and social environment we now have a complex socioeconomic loss that is made up of the sum of localized losses: the loss from the increased morbidity rate, the losses to industry, to the residential-communal, agricultural, forest, and water economies. The damage inflicted is dealt with primarily out of the budget.

If we compare the magnitude of the profit factories get from their not undamaging production with the subsequent outlays for liquidating that damage, then we run up against the unprofitability of chemistry and metallurgy. This "movement" of profit in the economic mechanism is uncivilized and destructive in the nearest term. The paradox is that this "movement" is well concealed because it is distributed among the economy's branches. The Health Ministry spends its "own" budgetary means on treating people poisoned by toxic wastes; other ministries on liquidating localized losses in their own branches. Even the UkSSR Gosplan does not define what portion of the expenditures on labor, energy, raw resources, and materials goes to liquidating ecological damage and so it too lands in a vicious circle of illusory profit, of how much outlay will have to be made in the near future.

Where do we begin taking up "ecological self-financing" so as to eliminate the paradoxes of destructive management? Obviously with the cost of natural resources, the cost of loss to the environment, as well as the cost of the goods produced. However, as theory asserts, it remains to a certain extent of an elusive magnitude. Cost is expressed only approximately in money terms. For the sake of saving the environment we must learn how to pinpoint and evaluate in terms of the price of goods our economic relations with nature much more profoundly than by means of fines. In Marx's time, nature was as inexhaustible as shagreen leather. Let us turn to the authorities.

To PRAVDA's question about Marx's working theory of cost, the well-known American economist and Nobel laureate V. V. Leont'ev responded: "In modern-day conditions it has been truncated, since now there are practically no free gifts of nature... Moreover, Marx did not take into consideration expenditures on ecology, which today are an important item in the expenses of many branches." Let us turn to the figures. For each kilogram of manufactured article an average of 100-150 kilograms of natural matter (raw materials, water, timber, atmospheric oxygen) is spent. What remains is largely destructive to biological life. We continue to assert dogmatically: there are things that possess extraordinary value for man but do not possess a cost! These include air, water, land, and forests. Economists cite Marx's theory: "...consumer cost, or good, possesses cost only by virtue of realizing or materializing abstract human labor," and his pronouncement, "...in direct contradiction to the perceptibly crude objectivity of commodity bodies, not a single atom of matter enters into their price." This is absolutely true: man did not create air, water, land, or forest. But they are disappearing and becoming more and more unfit for human life.

Our society rests wholly on water, land, air, forests, and useful minerals. Our health, safety, economy, and well-being depend on our realization of how these fateful resources should be used. Is it sensible under current conditions, when mankind stands on the threshold of the

most critical period of development it has ever known, to hide behind the shield of dogmatism and fail to recognize the alternatives of the as yet very few "biosocial economists"? One of them, the Siberian scholar P. G. Odlak, has worked out a practical "economics of loans," which envisages mutual financing and reimbursements for losses with respect to nature. The "nonbioeconomic economists" do not wish to recognize the "noosphere" theory, though. Must we really suffer further ecological blows and leave our descendants a poisoned environment, and that with the outmoded theory about the absence of cost for natural resources? What we need is a creative application, a development of a theory of goods production under conditions of scientific-technical progress and ever-quickenec ecocide, as V. V. Leont'ev has done. One of these trends is "ecological self-financing."

The cost of scrubbing equipment that will allow us to make peace with nature, for example, for the poisonous wastes of a metallurgical factory or a TETs, amounts to 30-40 per cent of the cost of the technological equipment. A converter for treating auto emissions is almost one-fifth its cost. We have to pay to make our peace with nature. The question is warranted: how can prices for goods take into account in an integral fashion the ecological corrective—outlays for reproducing natural resources and protecting the environment? These questions are especially pertinent under republic and regional self-financing, but they have yet to be examined anywhere.

In the language of economics, the efficiency of production is evaluated according to three "whales," labor consumption, energy consumption, and materials consumption, the magnitude of which determines the prices for goods. Without control of these, self-financing and resource protection are unthinkable. We call them socially necessary outlays. But outlays for saving the environment are not only equally necessary, they are even more so. We do not, however, have a corresponding evaluative indicator. This could be the fourth "whale" of economics—the ecological consumption of production, and correspondingly of any good. In short, this is a gauge to which the concepts of "more" and "less" expressed in quantitative terms do apply. Its essence is just how much of what (the given natural matter) a specific factory extracts from nature and how much of what it gives back to it in the form of waste per person, area, volume, unit of production. The components of ecological consumption are oxygen consumption, water consumption, land consumption, and so on. Knowing these indicators and valuations for natural resources and for damage to the environment, it would not be hard to determine the level of ecological harm of production and what portion of the socioeconomic loss is contained in the cost-price of the good issued.

Today we have not encountered in a single enterprise's calculation of cost-price the components of ecological consumption as a corrective to the law of the cost of goods production, in which the exploitable natural

resources represent a unique (one could say "cosmic") good whose cost is created by expenditures for the "ecological amortization" and current expenditures for the protection of the environment. This is the chief requirement of "noospheric" thinking. The question immediately arises—why should primarily the producers pay for the ecological consumption of production? Let us use the example of matches and scrap metal to clarify.

If we take into account the ecological corrective in the price-setting for a box of matches (outlays for restoration of the forest, toxic wastes in the production of the cardboard and chemical matters, transportation), then that box certainly does not cost one kopek. Ignoring the ecological consumption of production has led to a paradox—it is better to dig deeper into the earth, poison the biosphere, waste more labor on obtaining iron ore and other minerals than to raise the purchase price for scrap metal. After all, the consumer cost for a ton of secondary metal is an order higher than the same cost for the hundreds of tons of ore obtained to smelt that ton. If we reexamine our thinking we can clean our republic of rusting scrap metal, feed the martens, return nature to health, and eliminate eyewash with the procurement of industry's "bread."

The time has come to divide the cost of the ecological consumption of production into two pockets—the "gifts of nature" and the harm to the environment and its protection must be paid for equally by both the goods' producer and consumer. Not everyone agrees with the concept of raising prices for goods; they're not that cheap as it is. Here each of us must, as Gogol liked to say, rise to the occasion. Nondamaging technology must be paid for with hard currency, of which we have practically none. The USSR Ecological Fund, the country's scarce budgetary means, and the traditional fines will scarcely cover the gaping ecological holes.

Here the idea of ecological self-financing brings to mind the inevitability of reevaluating the concept of the "cost-price" of a good. It has to be understood as the "nature-cost-price," where more goes to nature and less to the individual. It is a struggle against consumerism for the sake of survival. There is an alternative to price-based ecological self-financing: an ecological tax on the consumer, for example, on salaries. It has been calculated that for peaceful interaction with nature in the country we need to spend about 100 billion rubles, and in Ukraine 15 billion. Over the last four five-year plans, the state's capital investment for environmental protection came on average to 10 billion rubles. If we set ourselves the task of making peace with nature by the year 2000, then in the 13th and 14th five-year plans WE MUST ALLOT 10 BILLION RUBLES PER ANNUM—as much as for a single five-year period in the past. The sum of the ecological tax for covering the annual environmental outlay amounts to about 7 rubles a month from the budget of each person working in the national economy, or about 3 per cent of the average monthly pay for the country. Will we be able to rise to the occasion, are we capable of digging up that sum to rescue our

common house? Is this policy moral? If not, then what are the other alternatives? I would say only that the majority of people are aware of the noble purpose of the economic tax.

Ecological self-financing is one of the paths that has been obstructed by consumerism and been in a vacuum in the economy. Our republic can clear it up on its own. This problem must become a subject of examination in the UkrSSR Soviet of Ministers' Commission on Scientific-Technical Progress. The concept can be elaborated by the Economics Institute of the UkrSSR Academy of Sciences at the request of the republic's State Committee for the Protection of the Environment. Overall, the UkrSSR Supreme Soviet can work out and approve a logical republic-level program for ecological self-financing as a component part of the measures involved in the shift to republic self-financing. Signed V. Mogila, Senior Lecturer in Continuing Education for Managers and Specialists, UkrSSR Ministry of Transportation.

### Ecology, Land Use, Economics Relationships in Ukraine Compared

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[Article by V. Tregobchuk, doctor of economic sciences and chief of the Economics of Use of Nature Department, UkrSSR Academy of Sciences: "Economics and the Environment"]

[Text] At the contemporary stage of socio-economic development, the shortage of pure fresh water, the qualitative exhaustion of practically all water sources, and the pollution of the atmosphere—especially in the industrial centers and major cities, the level of which greatly exceeds the allowable concentration of harmful substances—have become real facts for the country as a whole, and for our republic as well. Add to this the fact that large areas of arable land, including agricultural lands, are being withdrawn for industrial, housing, cultural and road construction; erosion, degradation of the soil and impoverishment of the horticultural and animal world are taking place; and the environment in general is in a state of serious decline.

These things are causing enormous damage to the natural potential, and the effectiveness of social production and the quality of its products are declining. But perhaps the greatest misfortune is the fact that the intensifying processes of pollution and destruction of the natural environment are having a negative effect on human health, and on the upcoming generation above all.

The physical and mental health of the people is continually declining because of the fact that the people are consuming poor-quality water and foodstuffs containing numerous harmful substances, and are breathing polluted air with high concentrations of toxic and carcinogenic elements. For example, according to published data, on the average every citizen of Moscow suffers from two chronic illnesses, while his average lifespan

declined by ten years in the years 1968-1988 alone; and 70-75 percent of Moscow school children cannot be considered healthy. In all likelihood, the situation is no better in Kiev, which is one of the most polluted cities in the land, and one of the ten most polluted in the republic.

And this is why measures for rational use and preservation of natural resources, perfecting the use of nature and switching social production to a resource-, energy-, and environmental-conservation regime are no less needed today, if not more, than the measures for increasing material production.

One should, however, take note of the fact that in the last two decades, the development of the country's national-economic complex, and that of the republic, has gone in just the opposite direction. The increase in society's industrial potential was divorced from the direct solution of urgent social problems, and above all the food problem; moreover, without considering the ecological factors. As a result, while in possession of a powerful industrial-technical potential and enormous natural resources, the country has unbelievably lagged behind many of the world's states in terms of the level of social development and well-being, and has found itself on the verge of a general ecological crisis.

It was no accident that the first Congress of People's Deputies adopted the resolution, "On the Basic Directions of the USSR's Domestic and Foreign Policy," which pointed out that implementing a complex of measures for fundamentally improving the people's social, living and working conditions must be considered the most important task of the organs of Soviet rule. Among these, an important place was given to completing development of a nationwide ecological program, which embraces both priority and long-term measures for restoring the health of the natural environment, implementing universal expert ecological analysis of all economic projects and effective state control over the use of natural resources, and ensuring the publicizing of information about the quality of the environment.

Today society realizes more fully and completely the importance and urgency of the tasks for environmental protection, for fundamentally restructuring the use of nature, and for a weighty and sober approach, not suborned by departmental interests, to all kinds of projects which affect the natural environment. In many regions of the country, society is more and more actively speaking out against unjustified decisions with respect to the use of this or that kind of natural resource, thoughtless large-scale construction projects, and unwise interference in the natural environment on the part of certain ministries and agencies.

At the March 1989 CPSU Central Committee Plenum, which examined the question of the CPSU's agrarian policy in contemporary conditions, it was stressed: "Society today is becoming actively involved in the solution of ecological problems. Such a position by

Soviet society should be welcomed and supported in every way. It is truly a question of ensuring scientific justification and thorough consideration of every economic decision. No other approach is acceptable here." This concerns the ecological problems of development of both the agro-industrial complex and the national economy as a whole.

Today we must ensure complete understanding and recognition of the cause-and-effect relationships, and the dependence and results of the interaction of contemporary social production with the environment. Both positive and negative achievements in social production must be forecast, which will make it possible to resolve the crisis situations which have sprung up in the interrelations of man and nature; otherwise, they may complicate and aggravate them.

#### ECOLOGICAL PROBLEMS OF THE ECONOMIC DEVELOPMENT OF THE UKSSR

Economic problems of further economic growth in the industrially-developed regions with intensive agricultural production have taken on special urgency.

The Ukrainian SSR today is numbered among the republics having the highest integral level of anthropogenic and technogenic loads on the natural environment on practically all its territory. Here the lands, the water supply, the forests and mineral raw-material resources have been brought into the economic cycle to the maximum.

Our republic occupies about 2.7 percent of the total area of the USSR, but nearly 20 percent of the nation's industrial and agro-industrial potential is concentrated on its territory; moreover, the kind of industrial branches and agriculture which have an exceptionally great influence on the environment—on land and water resources and the atmosphere, destroying and polluting them. On the whole, according to our calculations, the aggregate load of all the manufacturing and the populace on the environment and environmental resources in the UKSSR is almost 15 times higher than the USSR average, considering that it has about one-fourth the nationwide volume of industrial discharge into the environment.

A certain kind of "ecological expansion" is characteristic of the Ukrainian SSR, that is, an uncontrolled and not always justifiable increase in the load on the environment. Being a result of the extensive development of the economy, the ever-greater quantitative growth in the material-technical potential of social production, increased chemicalization and land-reclamation work in agriculture, and so on, it is leading not only to the pollution and degradation of nature and the exhaustion of its resources, but also to a situation in which, in order to maintain the level of well-being achieved, it is necessary to expend increasing amounts of energy and resources, drawn from the environment. And this, once again, intensifies society's pressure on nature.

Therefore, in our republic the ecological problems of economic development and questions of the technical, technological and systemic restructuring of social production, to include the AIC [agro-industrial complex], and fundamental improvements in the use and preservation of all natural resources, are of paramount importance. Their solution is complicated today by the fact that for a long time the growth of national economic potential has been accomplished on a technically-obsolete base, without consideration of ecological factors and criteria, and in the absence of strict ecological limitations.

As a result, both in industry and in the AIC, frankly speaking, a biospherically-incompatible, environment-polluting, and environment-destroying material-technical base was formed, and the predominantly extensive path of economic development has led to the aggravation of ecological relationships and the emergence of shortages of many kinds of natural resources.

The effectiveness of social production at the contemporary stage depends to a decisive degree on how the improvement of its material-technical base goes, on introduction of principally-new kinds of equipment and technology appropriate to the ecological requirements, and on how many assets are directed toward implementing environmental protection measures. This will also determine the solution of many social problems, and ensure the ecological purity of foodstuffs and the habitable environment.

Transition to new, more complex and sophisticated, resource- and environment-conserving kinds of equipment and technology, which are able in the final analysis to form a progressive and practically ecologically-safe technical-technological base for society and for industrial and agro-industrial production, will be determined by the availability of the necessary material and financial assets, and the ability of industry to satisfy the demand for advanced equipment and technology.

Moreover, this transition is impossible without a rather lengthy period of resource accumulation. Given the low efficiency of social production as a whole, and especially in the AIC, rapid creation of these prerequisites is unrealistic. There is no basis to conclude that we will be able to solve the ecological problems soon after society learns of their severity.

Under the management system which has evolved, enterprises and associations are not oriented toward continually seeking ways and means for introducing the most effective and ecologically-safe kinds of equipment and technology to production. They have no interest in raising labor productivity or in resource- and nature-conservation by virtue of technical and technological innovations.

The fundamental obstacle in the path of solving top-priority ecological problems is the existing industrial branch structure for managing the national economy, and the imbedded habit of each branch to expand, and to

assimilate assets wherever it is easiest to do so, where neither new equipment nor new technology need be applied.

Therefore, it is necessary to reject the stereotypes of the past at all levels of management of the national economy. Ecological perestroyka of production will not take place by itself, in proportion to an increase in national wealth and a decline in the net consumption of resources, as people used to think. In this matter, energetic and decisive measures are needed, aimed at making all industrial and agro-industrial production ecologically safe.

Under the new management conditions, in which all enterprises and associations will be transferred to complete cost-accounting, self-financing and self-management, they will strive to achieve production growth on the basis of more effective use of the existing resource potential and accelerated transition to new and progressive kinds of equipment and technology. As a result, the real prerequisites will appear for successfully implementing a complex of social and nature-conservation measures.

It is a question of accompanying the intensification of production in all spheres of the national economy with fundamental restructuring of its material-technical base, in order that equipment and technology, comprehensive mechanization and automation of manufacturing processes, use of chemicals and land-reclamation in the agrarian sector, be developed in the direction of not only increasing labor productivity and improved working conditions, but also minimizing the negative effects on the natural environment, and effective solution of ecological problems.

Today the ecologic strategy consists of switching from implementing individual or even comprehensive nature-conservation measures, to working out and implementing a conception of making all industrial and agro-industrial production ecologically safe, so that it functions in an ecologically and economically stable manner.

Solving this problem is one of the most important goals of Scientific-Technical Progress. And not by means of slowing down its pace and refusing to adopt results proven in practice, as certain scientists and specialists propose. We must strive to solve the ecological problems of today, but with the help of the latest achievements of science and technology, introducing them on a wide scale in all links and spheres of the national economy, and especially in the AIC.

#### ECOLOGY AND AGRICULTURAL PRODUCTION

The ecological situation in the republic has become exceptionally acute in connection with wide-scale and insufficiently justified measures for concentration and specialization, intensification and industrialization, chemicalization and hydromelioration of agricultural production. Put into effect without consideration of

ecological requirements, they not only have not led to significant increase in agricultural effectiveness and solution of the food problem, they have also caused many negative ecological consequences.

These include the increasing chemical pollution of food-stuffs, land and water resources, and a sharp decline in the stability and self-regulating capacity of the agro-ecosystem, the humus content in the soils, and salination and acidification of agricultural croplands.

In this connection it is important to first implement the purposeful ecologization of farming and animal husbandry, branches which are having an ever-increasing effect on the natural environment over very large areas. In the Ukrainian SSR this means over 70 percent of its land area, and practically its entire watershed, including the seas. The "contribution" of agriculture to the overall pollution of water resources in the republic today amounts to 45-48 percent.

At the first stage of ecologization of farming, it would be wise to severely restrict and bring to a minimum the use of easily-soluble mineral fertilizers, especially nitrogens; and to implement universal transition, first of all to integrated systems, and then to biological and agrotechnical systems for battling diseases, pests and weeds; and to stimulating the biological activity of the soil by means of wide-scale application of organic fertilizers of animal and plant origin.

It is especially appropriate to speak about chemicalization of agricultural production. In the mid-1970's the USSR took first place in the world in production and use of mineral fertilizers in agriculture; and in the mid-1980's, in the use of chemical means of crop protection. Chemicalization of agriculture grew by leaps and bounds in our republic as well: in the years 1961-1988, the supply of mineral fertilizers to kolkhozes and sovkhozes grew from 482,000 tons to 5.2 million tons (expressed in terms of 100 percent of the nutrients), and in terms of fertilizers per hectare of plowed fields, from 14.6 to 157.9 kilograms; of that number, nitrogens increased from 3.6 to 69.9 kilograms, or by 10.8 and 19.4-fold, respectively.

Production and application of chemical agents for protecting crops in the republic increased in that same period from 4,600 to 65,200 tons, to include herbicides, which increased from 50 to 8,100 tons, that is, by a factor of 14.2 and 162, respectively.

Many agencies and many administrators have always considered accelerated chemicalization of agricultural production the chief factor for rapidly solving the food problem at little cost, for raising the productivity of cultivated land, and to improve the quality of foodstuffs and agricultural raw materials. But like many other measures, and irrigation in particular, it was implemented without the appropriate organizational-technological preparation, without increasing farming

standards and a clear-cut system of agro-chemical servicing, and without an effective and efficient economic mechanism; thus, naturally, its expectations were unfulfilled.

While achieving wide-scale chemicalization of agriculture, we nevertheless have not solved the food problem. And here the unforeseen consequences have turned out to be more than sufficient.

The most perceptible blow from universal chemicalization of agriculture was dealt to the republic's surface and underground water sources. Increased nitrate content is observed in practically all water sources, and many open water sources have been subjected to eutrophication; that is, blue-green water growths are developing intensively in them. Medical scientists and biologists have proven that consumption of water with a high nitrate content leads to severe illness—methemoglobinemia, which attacks the nervous system and the brain, and above all in children and juveniles.

In addition, in many bodies of water, including the Dnepr, pesticides, herbicides and other toxic chemicals are found in the water; which, accumulating in zooplankton and the organisms of fish, then enter the human organism in the water and food man consumes.

As properly noted in periodical literature, the chemical "war" is already going on not only in the USA, but in our country as well. However, when the total severity of this problem was discovered in the USA, measures were taken immediately to significantly improve the culture of farming; an efficiently functioning agrochemical service was set up, new technologies were developed for local introduction of mineral fertilizers and toxic chemicals, complexes of machinery and equipment were created for safe application of chemical agents, and measures and methods were worked out for preventing the chemical pollution of the natural environment.

An effective system has been set up in all states for transmitting information from scientific institutions to the farms and entrepreneurs. At the same time, chemicalization is strictly regulated by organs independent of departmental control, both at the federal and state level, which determine the chemical content of foodstuffs and in the natural environment. A code of laws is in effect in the country to protect nature and the consumers from excessive and unwise application of chemicals in agriculture; the negative consequences of chemicalization are published openly, and so on. Beyond a doubt, the accumulated experience in the USA in the area of rational use of chemicals in the agroindustrial complex deserve the most intensive study and application.

Practical experience in agricultural production in most areas of the republic testify to the fact that, with the large volume and scale of chemical use attained and the very low standards for both chemicalization and farming in general, on the whole it would be more useful and better if we were to radically limit the application of chemical agents in agriculture, rather than use them stupidly and

without controls. Today it is becoming obvious that further increasing the volume of application of mineral fertilizers and toxic chemicals on kolkhozes and sovkhozes not only does not make sense—it is extremely dangerous.

As far as mineral fertilizers are concerned, measures should be undertaken here to produce fertilizer without harmful admixtures, and with programmed release of nutrient elements; that is, fertilizers which do not place a heavy burden on the ecology. Unfortunately, no significant gains have yet been made in this matter. About two decades ago a technology was developed for deriving phenyl-nitrates [penoselitry]—fertilizers which replace granulated superphosphates, fertilizers which are ecologically pure, since the nourishing materials they contain can be completely assimilated by the plants and are not leached out of the soil. However, production of phenyl-nitrates has not been set up yet.

Land and water reclamation, water management and hydraulic power engineering construction, and regulation of the surface flow have become major and extremely complex ecological problems in the UkSSR. While land and water reclamation efforts in the republic were being carried out on a small scale they did not have a noticeable effect on the natural environment, nor did they have negative macroecological consequences. But now, when land and water reclamation, water management and hydraulic power construction have become large-scale, and the area of irrigated and drained croplands has sharply increased, the situation in the natural environment has fundamentally changed, and in many aspects and regions it has changed for the worse.

The very same thing applies to the creation of water reservoirs in series on large and medium rivers. Land and water reclamation and water management are at present among the factors having extremely grave effects on nature, and are distinguished by the exceptional complexity of their ecological consequences.

Construction of dams for power plants and creation of major water reservoirs—sources of water supply and main water-transport routes, as well as irrigation and drainage canals—are introducing new elements into the natural environment. Under their influences, and also under the influences of irrigation and drainage of large land areas, the centuries-old ecological equilibrium is disrupted, and hydrobiological, hydrogeological, micro-climatic and agrobiological conditions are changed. At the same time, natural processes are either accelerated or slowed down, and new complex contradictions arise, both in the natural environment itself, and in all its interrelationships with man.

Because of the fact that insufficient attention was paid to ecological requirements in the past, many land and water reclamation and water management projects were not "introduced" to the environment in the best manner, and are quite often in "ecological conflict" with it.

For a long time virtually no significance was attributed to these problems, and they were not systematically studied. Damming river valleys with power station dams, which resulted in turning the rivers into huge water reservoirs, leads to inundation of large areas of meadowlands, river bottomlands, and agricultural croplands. As a result, many organic materials, woodlands and the like are now under the water.

As a result of raising the level of ground waters after the water reservoir basin is filled, many sections of land become saturated and the air-water ratio in chernozem soils worsens, which in zones of insufficient natural moisture causes accumulation of large quantities of salts, and in zones with sufficient or excessive moisture, the soils are transformed into clay. When the soil layers become swampy or salty in areas of severe saturation, the result is a radical decline in the productivity of agricultural croplands and forests. Quite often such sections are transformed from natural and cultural agro-ecosystems into wild and unproductive land areas.

Detailed analysis of the ecological consequences of water management construction shows, that in most cases the regulation of rivers in the plains and creation of major water reservoirs on them have negative consequences on the economy of the shore regions as well. Underestimation of the seriousness of ecological consequences, and disruption of the natural pace of processes in river basins have dealt an enormous blow to the fishing economy as well. Fishing productivity in estuaries and the water reservoirs themselves is steadily declining, as is the quality of the fish, owing to pollution and eutrophication.

To this one must add the great damage caused to the republic's national economy with the inundation of numerous villages and towns, as well as the meadowlands, flats and the like.

All of this testifies to the fact that one must approach the transformation of river ecosystems, which took shape over the course of tens and hundreds of thousands of years, with extreme care and consideration. Any interference in the nature of river basins must presume above all the rational use of nature and optimal management, the criterion for which is, on the one hand, ensuring maximum flow and useful bioproductivity in the entire river basin and in the delta, and preservation of high quality water resources and ecological balance in the water environment; and on the other, minimum economic losses and damage.

#### ACUTE PROBLEMS OF LAND USE

At the contemporary stage of socio-economic development of society, the ecological problems of land use have become very acute. Land resources occupy a special place in the biosphere, and in agriculture they are at the same time both an object and an instrument of labor, the basis for the continuation of the reproductive process. The land, as a natural-economic category represents a

system of interconnected agricultural lands, the most valuable part of land assets, and the chief means of production in agriculture.

Since the quantity of land is limited, and high-quality croplands are becoming fewer and fewer for a variety of reasons; and, because they are irreplaceable as the instruments and objects of labor in the agrarian sector of the economy, all the forces of society must be directed toward increasing the fertility of the soil, and thereby—the intensiveness of use of the lands in the economic cycle. It is precisely the conservation of land assets, the reproduction and multiplication of its natural fertility, and the bioprotective potential of croplands that are the decisive factors in uninterrupted growth of the production of food and agriculture raw materials, per unit of land area.

Unfortunately, the state of agricultural land assets in the Ukrainian SSR, whose land survey rating exceeds the average national indicator by a factor of 2.5, is cause for of alarm and concern. In most oblasts soil fertility is declining, the scale of wind and water erosion is increasing, and the processes of degradation and impoverishment of land resources are under way.

One should bear in mind that soil is essentially a living body, the living element of the biosphere, and therefore all man's economic activity one way or another reflects on the state of the land assets and its fertility. During the last two or three decades, the negative load on land resources has grown sharply, not only in connection with chemicalization and industrialization of agriculture, but also on the part of industrial production. They are being polluted with chemical substances and industrial wastes.

According to data from scientific research institutions, during the years 1961-1988, the area of eroded cropland increased by more than two million hectares, and at the present time amounts to ten million hectares—that is, it comprises almost one-third of all the arable land in the UkrSSR. Land areas in danger of wind erosion have reached 20 million hectares, or about one-half the agricultural cropland areas. Under conditions of modern intensive farming, which is carried out with the use of predominately anti-ecological equipment and technologies, the topsoil washout rate exceeds by about ten-fold the rate of the soil-formation process. Topsoil losses, for which 4-5 tons per hectare is an acceptable level, will reach an average of 31-36 tons per hectare per year, and in the extremely wet years, on fields planted with cultivated row-crops, from 60 to 120 tons per hectare.

The average annual loss of humus in the republic, for the period beginning with 1960 has amounted to 41.8 million tons, including 23.7 million tons as a result of erosion. The entry of nutrient elements and fertilizers into the soil is today two to three times lower than what is removed by vegetation and as a result of erosion. Whereas the chernozems of the southern oblasts had contained 9.0-10 percent humus before being plowed up, now there is only 4.0-5.0 percent. As noted at the zonal

meeting and seminar held in Dnepropetrovsk in 1986, during the years 1971-1985 alone, the soils of the UkrSSR lost 12 percent of their humus.

All this is the reason for the fact that, in spite of the major capital investments in the agrarian sector of the economy—water and land reclamation measures on a broad scale, increasing application of mineral fertilizers and chemical means for protecting plants, and supplying technology to agriculture—there has been no noteworthy success in increasing crop yields. For example, grain crop yields in the 9th Five Year Plan amounted to 24.7 centners, while in the 11th it was 24.3 centners per hectare; for sugar beets, the respective figures were 268 and 259; vegetables, 129 and 142. Yields from capital investments are steadily declining, but the operating costs of agricultural production are increasing.

All this testifies to the fact that it is necessary to fundamentally restructure land use and soil conservation, change the conception of the development and structuring of farming in the republic, directing it along the ecologically-safe path with adaptive intensification and wide-scale use of biotechnological factors for restoration of fertility and protection of plants. It is namely this that will permit solving the problems of protecting soil resources from degradation and destruction, and protecting the natural environment as a whole, while at the same time increasing production of foodstuffs and increasing its quality and ecological purity.

A report at the March 1989 CPSU Central Committee Plenum stressed that, "For a variety of reasons we have ceased to give proper respect to the land. In most regions the fertility of the land is in decline... Thus, we cannot deal with the land in this manner any longer. The time has come to draw up and pass a law on the land and land use. We must intensify our legislative measures to protect arable lands from being squandered away. But even that is not enough. Greater attention must be given to scientific methods of land use and introduction of crop rotation and soil conservation technologies. And this is the direct responsibility of all land users."

In order to reduce the technogenic impact on the soil and the natural environment in general when practicing agriculture, and reduce the scale of its pollution and degradation, especially soil erosion, it is necessary to improve the structure of cultivated cropland and sown fields that has evolved in the UkrSSR. There is a very high proportion of plowed land and cultivated row-crops in the republic, which inevitably leads to intensive wash-out of topsoil. Meanwhile, during the years 1961-1988 the proportion of plowed fields increased from 78.8 to 81.2 percent, and irrigated fields from 72 to 94.4 percent. It is necessary to take matters in hand, in order to significantly decrease the level of plowing up agricultural croplands.

Meanwhile, in the USA, for example, the area of land under cultivation had increased until 1929, when it reached its maximum, 211 million hectares. After 1930

there was a sharp reduction in area under the plow, which was down to 188 million hectares by 1954; 146 million in 1959; and 142 million in the mid-1980's (out of 425 million hectares of arable land); that is, the proportion of cropland under cultivation declined from 50 to 33.4 percent. The rate of cropland reduction has slowed down in the last 25 years because of increased demand for food on the world market, especially on the part of the USSR.

From an ecological point of view the reduction of the area of our republic's agricultural land with relatively low impact on the natural environment (hayfields, pastures, and very old plantations) was unjustified. During the years 1961-1988 the area of hayfields and pastures decreased by 12 percent, and that of old plantations by 40 percent; and their proportion in the structure of agricultural lands declined, respectively, by 1.3 and 0.9 percentage points.

In addition, the extremely low level of forestation of the territory of the UkrSSR does not promote the preservation and restoration of the natural environment; during the years 1966-1988, forest land increased by only 1.2 percent—from 13.1 percent in 1965 to 14.3 in 1988.

Measures to create rational agricultural districts in all farming regions are being implemented very slowly: planting new strips of trees to prevent soil erosion and to preserve water; building water reservoirs, anti-erosion measures and the like, and chiefly along the lines of contoured land-reclamation structures on agricultural territories. A great deal of work remains to be accomplished on this plane. As USSR Academy of Sciences Corresponding Member A.V. Yablokov stated: In order to keep the natural environment of a major region in operating condition, capable of supporting, on the one hand, the climatic conditions, and on the other, ensure the production of foodstuffs and public recreation, it is necessary to keep about 30 percent of the area in a condition closely approximating its natural state. Of the remaining 70 percent, half must be devoted to production of foodstuffs. And if the area of agricultural croplands varies significantly in different regions, then reducing the area devoted to the "wild" state inevitably leads to ecological catastrophe. For now such a correlation is characteristic of only certain farming regions in the country (for example, the Baltic republics).

The intensiveness and effectiveness of land resource use are directly dependent upon both the peculiarities of the soil and climatic conditions, the absolute and relative levels of available land, and upon how the fertile soils are used, conserved and regenerated—as well as upon the economic mechanism of land use. Investment policy in this sphere requires fundamental changes in this sphere, and above all the correlation of capital investments in conservation and reclamation of the land. At the present time it amounts to approximately 1:9, but it should be, by our calculations, 1:2.

In spite of the fact that over 15 percent of the nation's plowed land area is concentrated in the UkrSSR, the republic's proportion of national capital investments in land reclamation amounted to 11.5 percent in the 11th Five Year Plan, and in the 12th, less than 11 percent. In the 13th Five Year Plan it must be raised to at least 13-14 percent, in order that measures for widespread cultivation of the degraded Ukrainian chernozems might be carried out.

At the same time a complex of measures for conservation, reproduction and increase of soil fertility and for the bioprotective potential of land resources are necessary; these must be accompanied by measures of organizational-economic and social procedure, restructuring of the nature of land ownership and land use, and planning and realization of land-conservation work—not only on a republic-wide scale, but also on every kolkhoz and sovkhoz, and in every production sector and team.

It is necessary to develop in every way and perfect various forms of leasing relationships in agriculture, with respect to the use of land resources. The interests of the cause and the specific features of the land as a means of production require that agricultural lands be offered for long-term use by collective, family and individual land-users. Payments for land use must be stable, and such that they would induce the rural workers to invest their assets in the restoration and increase of soil fertility.

Without effectively solving the problem of land conservation and determining its real owner, it will not be possible to achieve the planned growth rates for foodstuffs and agricultural raw materials.

Taking into consideration the UkrSSR's soil and climatic conditions which are favorable for agriculture, it is deemed expedient to reorient its national economy in the future toward the predominant development and rationalization of the AIC structure, toward effective and more complete use of its natural agrarian potential, and also its recreational and medical treatment resources. At the same time it is important to preserve to the maximum extent the nature-preservation and climate-regulating functions of the Carpathians and the Crimea, and to limit and strictly regulate construction of new industrial projects, in particular those which are unsafe in an ecological sense (atomic power engineering, and the chemical and metallurgical industries).

The development of the republic's industrial potential must be closely tied to the solution of the food problem, and to ecological and social tasks. And it is important to re-orient the structure of its industry toward nature conservation, and place it on a scientific and intellectually-intensive path of development.

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**Chairman on Goals of New Committee to Save Sea of Azov**

90US0599A Kiev *PRAVDA UKRAINY* in Russian  
17 Jan 90 p 4

[Interview with Ye.N. Bal, chairman of the Inter-Republic Committee to Save the Sea of Azov, by correspondent G. Alekseyenko: "A Sea of Fears and Hopes"]

[Text] **An inter-republic committee to save the Sea of Azov has been created in Mariupol. We are talking with the chairman of this committee, head of the Mariupol DOSAAF school, Ye. N. Bal.**

[Alekseyenko] Yevgeniy Nikolayevich, how did the committee begin its work?

[Bal] We sent an Appeal, which the citizens of the cities of the Azov Sea coastal region had adopted at meetings, to the second USSR Congress of People's Deputies. The central demand was to have the problems of the Sea of Azov included in the draft of the long-term state environmental protection program and to have it declared an ecological disaster zone.

Of course, you don't get too far by demands alone. One must develop and propose specific integrated recommendations on saving the sea to the government. Meanwhile no unified concept of the regeneration of the Azov exists, since there is no total picture of the sea's ill health. The analyses of the Azov Fishing Industry Scientific Research Institute indicate the presence of copper, lead, mercury and cadmium in the bottom sediments of the sea and of organochlorine pesticides, DDT metabolites and saturna [not further identified] in specimens from fish organisms.

What is the scale of the contamination for the basin as a whole? Let's take a look at the State Water Cadastre, published by the State Committee for Hydrometeorology. In the columns which ought to contain information on the presence of heavy metal salts in the sea there are either lines signifying omissions or data on humidity or water temperature. It may be that the missing indicators are in other publications of the State Committee. But the trouble is precisely that a complete representation of the "state of health" of the sea cannot be put together on the basis of uncoordinated ecological information. Not a single department issues it in the necessary volume. So we will take it upon ourselves to fill out the blank spots on the map of the contamination of the Azov Sea. This work is already underway. Materials gathered along the Azov coast by an ecological expedition which the Mariupol people undertook in September 1989 are now being processed. Preparations are underway for two more expeditions planned for next summer. Here journalists, in particular *PRAVDA UKRAINY*, could be of great help to us.

[Alekseyenko] You mean assistance in the collection of funds for the outfitting and financing of an expedition?

[Bal] That first of all.

[Alekseyenko] How do you like the idea of holding a "round table" in the editorial office with deputies, your committee and cooperative members as participants. The subject to be the introduction of tax abatements for cooperatives which would regularly allocate funds to save the Sea of Azov.

[Bal] If such a conversation takes place I think that the participants will be able to find a common language. I await the invitations. My counter-proposal is to organize a joint expedition of the committee and the editorial office which can be both the general sponsor and the chronicler of the cruise.

By popularizing the work of the committee the paper would help to consolidate its prestige. We need that for a positive resolution of the question of the approval of our Charter by the Presidium of the USSR Supreme Soviet. Having obtained the rights of a juridical person the committee will open its own account in Zhilotsbank (USSR Housing and Social Bank).

And then as an independent khozraschet unit we will be able to carry on commercial activity. I think that the T-shirts and badges with Azov Sea ecological symbols which we intend to produce will be in demand both on the internal market and abroad. We would be able to open an account in Vneshekonombank (Bank for Foreign Economic Activity). If that happens, I hope that natives of our region living abroad who are well-off will also begin to add to it.

Finally, the committee is in need of journalistic protection from bureaucrats. The Donetsk oblast epidemiological station has been holding up for three months a study of samples of Azov Sea bottom sediments that we selected as far back as the time of the September expedition. Is this not bureaucratic red tape!?

[Alekseyenko] What you want to say is that since the committee doesn't have its own publication yet, *PRAVDA UKRAINY* could become the tribune of glasnost for the Azov ecological movement?

[Bal] The more information about the work of the committee there is in the press, the more there are of those wishing to help the cause for which it was created. We are already getting letters that help to determine the regions of the basin which are on the verge of ecological catastrophe.

Thus, an alarm from Berdyansk is being monitored. Its authors, I. Koldoba, V. Brezitskiy and others have reported that in the region of the dacha settlement, nearly washed away by the sewage from a sewer that is full of holes, another one is being built. Its waste threatens to turn a section of sea coast into a stinking swamp.

A letter from Yeysk concerning the deadly for the sea decision of the local authorities to build a cement plant two kilometers from the coast does not give one peace. We are warning such good-for-nothing bosses that the

committee will appear in the courts and arbitration proceedings as a plaintiff against any enterprises, departments or elective bodies that try to turn our sea into a mixing tank for harmful wastes. The Berdyansk Experimental Petrochemical Plant is using it precisely in this capacity. The committee is trying to get the fatty acids shop of this enterprise, a very dangerous source of the sea's pollution, closed.

In order to competently fight against the destroyers of the Azov, we are creating a data bank on international requirements for the erection of industrial projects near the sea. Contacts with "Greenpeace" are being set up for this purpose.

The committee receives many interesting proposals concerning collaboration. The Kiev Botany Institute has put forward the idea of creating a device for the remote-control analysis of water quality using lasers. The collective of the Special Design-Technological Bureau "Turbulentnost" (Turbulence) of Donetsk State University has proposed the joint development of a self-contained buoy which records the sea's contamination. Ecologists from the young people's scientific and technical centers come to us with daring projects. We invite the collaboration of all who have ideas on how to save the Sea of Azov.

#### **Mariupol Citizens Issue Public Appeal on Local Environmental Concerns**

*90US0633D Kiev PRAVDA UKRAINY in Russian  
1 Feb 90 p 3*

[Unattributed article: "Let's Return the Azov Area to Health: Appeal by Mariupol Workers to a Session of UkSSR Supreme Soviet and to the Republic's Citizenry"]

**[Text] The public movement to improve the environment in the Azov area has united within its ranks party and soviet workers, scientists, cultural and artistic figures, and activists from the Zelenyy Svit [Green World], Za Chistyy Mariupol [For a Clean Mariupol], and other organizations. It is extremely noteworthy that V. G. Merkulov, second secretary of the party's Mariupol Gorkom, and V. M. Lysov, deputy chairman of the city ispolkom, have been elected to the administrative agencies of the Save the Sea of Azov committee.**

**The appeal that follows is the fruit of the collective mind of the people of Mariupol. The city dwellers formulated their evaluations of the ecological situation that has developed in the area of the Sea of Azov and their recommendations for taking it out of its crisis situation, and refined those formulations during the course of ecological expeditions and work to recreate a realistic picture of the pollution of the sea, and in discussions on the pages of PRIAZOVSKIY RABOCHIY newspaper. The editorial office of that newspaper had given the opportunity to everyone to express his point of view—metallurgists and physicians, seamen and scientists, members of informal organizations and workers at party and soviet agencies.**

**The people of Mariupol prepared a single point of view concerning what must be done to save the Azov area, to transform the ecological disaster zone into a recreational area for the republic's workers, and to return to the land of plenty the glory of a curative resort.**

The deformation of the environment in the southern part of the Donbass and the Sea of Azov has reached a critical condition. The thoughtless technical and social policy has led what used to be at one time a flourishing land to a profound ecological crisis. Every 24 hours, a resident of our city receives a "portion" of noxious substances weighing more than 4 kilograms. More than a billion cubic meters of slag—almost one-third of which is polluted—is dumped annually into the Sea of Azov and the Kalchik and Kalmius rivers.

People have forgotten the days when the sea was rich in fish and a recreational area for the workers of Donbass and the Ukraine. We have become hostages of USSR Ministry of Metallurgy and other departments that are deaf to the demands of the local population. Very large metallurgical combines—Azovstal Combine, the Combine imeni Illich, and the coke-chemical plant—are operating in city at full capacity, polluting the city's environment. These three enterprises produce 96 percent of the total discharge.

The implementation of the departmental priorities in the economy has led to disproportions in developing the economic and social sectors of the city's infrastructure. Out of 5.4 billion rubles of capital investments used during the last 30 years in Mariupol, only 0.8 billion rubles, or 16.3 percent, was channeled into the development of the social sphere, and even less was expended to meet the needs of the ecology—1.6 percent.

Our numerous appeals to union and republic agencies failed to produce any tangible results. And the instructions from our country's government—to prepare recommendations to improve the ecological situation in our city—have been completely lost in the oblast and republic offices.

From year to year the government's decree concerning the limitation of industrial construction, concerning the attainment by the year 1995 of the standards for the maximum admissible discharge of pollutants into the atmosphere, and the implementation of the measures to prevent the pollution of the Sea of Azov has not been fulfilled in our city.

The documents proposed by USSR Ministry of Metallurgy—Program for First-Priority Operations for Metallurgical Enterprises in 1988-1995, and Scheme for Developing the Metallurgical Branch by the Year 2005—are not acceptable, since they do not stipulate a reduction of the maximum permissible concentrations until the beginning of the twenty-first century. In addition, the critical shortage of industrial construction capacities in the city and the obvious imperfections of the technical decisions place in doubt, even at the present time, the implementation of what has been planned.

Inefficient use is being made of the shores of the Sea of Azov to improve the workers' health. The construction of rest homes, boarding homes, and sanatoriums is being carried out haphazardly, in an uncomprehensive manner. There is a lack of plumbing and the necessary purification structures, and the cultural, trade, and public-nutrition facilities are not being created.

Although we possess a tremendous economic potential, we do not have the right to use its capabilities to create normal living conditions, or, first of all, to resolve the questions of environmental protection. Practically speaking, the city has been left without any assistance on the part of the central departments or agencies of power.

We citizens of Mariupol are opposed to shifting the burden of resolving all the ecological problems that have accumulated simply onto the collectives at the enterprises or onto the city. We appeal to UkSSR Supreme Soviet and to you, comrade deputies, because we feel that the major improvement of the ecological situation in the city requires:

- as a first step the granting, starting in 1990, of the right to the city's enterprises to sell part of the output they produce, within a framework of state production orders, abroad for the purpose of acquiring, in exchange for currency, environmental-protection equipment and resource-economizing technological schemes, and involving foreign companies in the construction of environmental-protection projects;
- a change in the structure of the city's productive forces on the basis of a limitation of the industrial construction, the reduction of the volumes of metallurgical production, and the redistribution of the resources that are made available, for the purpose of developing the social sphere, as well as ecologically safe production entities at the operating enterprises;
- the creation on the shore of the Sea of Azov a protected zone, for which purpose it is necessary to shut down the ecologically unfavorable enterprises or to move them outside its confines; and the stipulation of the fulfillment of compensatory measures when locating industrial projects, as well as recreational facilities, on the shore;
- the allocation of the necessary funds for developing the shore as a republic-level health resort.

**This appeal was discussed in the labor collectives of Mariupol and was signed by thousands of city residents.**

#### **Workers Issue Appeal for Chemical Needed To Halt Toxic Discharges**

90US0562A Kiev PRAVDA UKRAINY in Russian  
18 Jan 90 p 2

[Letter from L. Artamonova, chairman of the labor collective council of the Khimvolokno Production Association, Svetlogorsk, Gomel Oblast: "Open Letter to the

Labor Collective of the Slavyansk Khimprom Production Association in Donetsk Oblast"]

[Text] Dear Comrades!

Having used official alternatives of effect on many authorities and having found no response, we are forced to turn to you through the newspaper. The following impels us to do this.

For 1989 the USSR Ministry of Light Industry allocated 13,000 tons of soda ash of your association to us. However, less than one-third of this quantity was unloaded. Not having received soda, which is a reagent, our shops are forced to dump untreated, aggressive industrial discharges into the Berezina River—the Dnepr's basin. The ecological situation, which is complex as it is, of our region directly adjacent to the Chernobyl zone, a situation aggravated by such a barbaric (on our part) pollution of nature, constantly leads to painful conflicts with nature protection bodies (which have already exacted from us 89,000 rubles for poisoning fish) and with informal movements and casts doubt on the competence of our management, which is unable to provide the association with the necessary raw materials.

Repeated missions of "go-getters" to Moscow, Slavyansk, and Kiev and meetings with your management (constantly promising something) led to nothing. Moreover, for 1990 we are getting a "pre-New Year gift" from our ministry in the form of attachment—again to you!—for the delivery of soda in the volume of 11,000 tons.

We are puzzled why to this day the management of your association cannot firmly say to the staff of the USSR Ministry of the Chemical and Petroleum Industry and the State Committee for Material and Technical Supply that this assignment is not within your powers and stop disappointing the collective of 11,000 Svetlogorsk chemists again and again.

We turn to you, comrades, with the following request: Taking the complex situation into account, weigh your capabilities and give us a straight answer: Will your association be able to stabilize the contractual shipments of soda ash in 1990?

With friendly greetings and respect, on behalf of the labor collective.

#### **Participants Comment on Georgian Ecological Conference**

90US0475B Tbilisi MOLODEZH GRUZII in Russian  
19 Dec 89 p 6

[Conference report written up by S. Gabuniya and I. Sikharulidze: "Ecology—A Concern of the Entire World"]

[Text] Recently in Tbilisi, the first ecologists congress completed its work at the Chess Palace. The organizers of the congress were the Georgian Ecologists Association and the republic Greens Movement. The Georgian

Society for Friendship and Cultural Ties With Foreign Countries provided great assistance in its preparation. Meeting to discuss the urgent and particularly acute ecological problems confronting the republic were representatives from the Georgian Greens Front, as well as guests from Moscow, Riga, Vilnius, Tallinn, Alma-Ata, Sumgait, Leningrad, as well as from Sweden and West Germany. We all realize how important it is at present to address nature and for this reason the debates were over each question be it Georgian social and cultural policy, the legal guarantees for the economic [sic] safety of national economic facilities or energy or medical and demographic problems from the standpoint of ecology.

In the process of the congress work we were able to meet and speak with certain of its participants concerning the goals and tasks of the measure being carried out as well as ecological problems in Georgia, other regions of our nation and abroad.

Chairman of the Greens Movement in Georgia and Corresponding Member of the Georgian Academy of Sciences Givi Tumanishvili: The main task for our congress was the final formation of an ecological movement in Georgia and its structure capable in the future of operating effectively. The congress discussed a number of technical and organizational questions. For us such a measure is a new undertaking and for this reason some problems were inevitable. But in summing up, it could be said that for this first time everything went not badly.

Head of the Republic Hydrometeorological Administration Murman Aridiya: We have been speaking for a long time about the economic [as published] state of our republic but this was the first time a congress has been devoted precisely to this.

Specifically, we have already designated a problem for all the large cities, transport. While in the West the question of air pollution by exhaust fumes is being worked on, in our country and, in particular, in Tbilisi, this question has been neglected. The Hydrometeorological Administration frequently conducts observations of the air and water and it must be said that the results are very alarming. For example, in the surface layers of the water of the Black Sea, there are large amounts of toxic dust (DDT), phenol, acids as well as other harmful substances. Particular focus should be put on the preparation DDT which is often called hepatic. This toxin accumulates in the liver and is virtually not eliminated from the organism.

It is not news to anyone that a majority of the republic rivers has been turned into sewage ditches. Analyses have shown that in addition to toxic chemicals, they contain a large amount of lead and various acids. As an example, I can give the following fact: in the Kvibitskali River the harmful substances are 160-fold above the standard.

All of these are very serious questions which require an immediate solution. The congress has provided us with

an opportunity to share our problems with one another, to exchange experience and possibly to borrow something.

Member of the People's Front of Latvia and Member of the Club for the Protection of the Environment Ins Tsalytsys: I am very pleased to have been able to participate in this congress and become acquainted with the Greens Movement in Georgia and this movement, in my view, is picking up strength. I would like to say that the Greens Movement was the very first informal association in Latvia dating back to 1986. And the first steps which we took were measures to preserve and restore the architectural and historical monuments. A little later the movement grew into the Club for the Protection of the Environment. At present, we already have in our ranks 2,500 supporters and like-thinkers. It must be said that during this time we have already achieved certain advances and we consider the first to be the organizing of a demonstration against building a subway in Riga. As is known, our city is a medieval one, very densely built up and on a friable soil. The building of an underground subway could involve the loss of the historical part of Riga which is basically built on oak pilings.

At present, we are endeavoring to move all industrial enterprises outside of Riga and the other large cities in the republic. In our plans for the ecological independence of the republic, very many of the industrial facilities must be restructured. Undoubtedly the moving of harmful enterprises out of the city also must be done carefully as the recreational areas are located there.

Representative of the Greens Department in the Bundestag Sieglinda Fries (West Germany): Having heard the papers and speeches by the representatives from the various regions of your nation, I undoubtedly could not help but notice the common features in our actions. I feel that the Greens Movement, as in our country, West Germany, is taking on a political cast and this is important because there are no ecological or economic problems which to some degree are not linked to politics. And if we wish to achieve any progress in our movement, we should keep pace with politics.

In West Germany, for example, the Greens Party until recently was the only political force fighting for ecology. But at present, virtually all the West German parties include points on environmental protection in their programs. That is, we have competing firms and at present there is a fight for spheres of influence, regardless of the fact that our competitors are unable to operate effectively. For 15 years now, the West German Greens Party has been fighting for the closing down of nuclear plants. However, our demands have evoked only irritation and probably things would have gone on this way had it not been for the emergency at the nuclear plant in Schleswig-Holstein. Fortunately, the reactor was able to be shut down promptly, otherwise the tragedy of Chernobyl could have been repeated.

The Speaker of the Greens Party in the Swedish Riksdag Fiona Berling: I would like to thank the congress organizers for the invitation. This again has shown that on the questions of ecology there cannot be opposition. Regardless of the fact that we may not understand one another on certain matters, on the questions of protecting the environment we must all think alike.

In 1988, in the Swedish Riksdag, where five parties had been firmly established for the last 30 years, to universal amazement, a new party appeared, the Greens Party. And in addition to ecological problems, we have begun to raise political and social problems.

Thus, the ecologists congress has completed its work. And no matter how diverse the questions raised at it might be, one thing is clear: In ecology there are no main and secondary problems, either in Georgia, Latvia or Sweden. The protection of the environment is the most important problem of our entire planet.

#### Armenian Official Views Republic's Power Supply Status, Ecological Concerns

90US0698A Yerevan KOMMUNIST in Russian  
25 Feb 90 p 1

[Interview with Yu. Ye. Khodzhamiryan, deputy chairman of the Armenian SSR Council of Ministers, by R. Karagezyan: "Armenia's Power Supply System: Status of the Branch and the Search for Ways to Bring It Out of Its Critical Condition"]

[Text] A year ago, by USSR Council of Ministers decree, the Armenian AES was shut down. As of today the shortage of electrical power in the republic's power system constitutes something of the order of 400,000 kilowatt-hours.

At the request of Armenpress correspondent R. Karagezyan, Yu. Ye. Khodzhamiryan, deputy chairman of ArSSR Council of Ministers, discusses the state of Armenia's power supply system and the ways to bring it out of its critical condition.

[Yu. Khodzhamiryan] At the present time the republic actually is in an extremely difficult situation. This was caused not only by the shutdown of the Armenian AES, but also by the fact that, for many long months, we have borne the burden of the blockade. Today actually all the republic's fuel reserves have been used up and, practically speaking, the electric power stations are "running on empty." It is precisely for that reason that the government took stern measures to economize electric power, including even the curtailment of the television-viewing periods. But despite these measures, the shortage of electrical capacities in the electric power system is still very large. Practically speaking, the republic's industry is not being provided with power and is operating at approximately 50 percent of its production capacities. Because of the blockade and the resultant lack of fuel and energy resources, the fulfillment of production plans was disrupted in January and February.

In the conditions that have been created, we requested all enterprises and residents of Armenia to reduce the expenditure of electrical power as much as possible. There has been a reconsideration of the operating schedule at a number of industrial enterprises, but as yet there has been no tangible improvement of the situation. The leadership and the collectives at a number of plants, factories, and individual rayons, as well as a considerable segment of the population, have not properly perceived the need to economize electrical power, and therefore the necessary effectiveness that one might have expected has not been achieved. And yet an elementary computation indicates that if, in every apartment, in every family, just one 60-watt bulb is turned off, the republic would achieve a reduction in consumption of the order of 50,000 kilowatts. I am not even speaking about industry, transportation, street lighting, etc., where a tremendous saving of electric power could be achieved.

[R. Karagezyan] Yuriy Yervandovich, it is well known that the reactors at the Armenian AES have been shut down completely and forever, the blockade is continuing, and there is no guarantee that, if it is lifted today, it will not be repeated tomorrow. In this regard, could you please tell us what steps are being taken by the government to provide the republic with electrical power?

[Yu. Khodzhamiryan] Actually, to my profound regret I must admit that in our state—a state that is striving to become a law-governed one—there are not yet any guarantees against a blockade. Today, of course, trains have started moving along the Nakhichevan sector, but who can guarantee that the extremists who have lost all reason and responsibility will not resume those antistate, antihumanitarian acts of blockade?

Therefore the government is working actively on the questions of providing the vital necessities to the republic in all areas of its activity, and primarily in the fuel and energy complex.

An understanding has already been reached with GSSR Council of Ministers concerning the completion of the construction of a gas pipeline through the Caucasian Range. The construction was temporarily stopped by the Georgian ecological movement. At the present time the construction plan includes necessary changes, the question of financing has been resolved, and Armgazprom, which is building this complicated gas pipeline, is supposed to complete its work by autumn. This will make it possible to improve gas supply considerably.

Work is being done to resolve the questions of constructing special docks on the Black Sea coast of Georgia and laying a pipeline to carry light petroleum products to the borders of Armenia; constructing the Leninakan-Bogdanovka railroad line; expanding the highway system; etc.

A comprehensive program has been developed to develop power engineering. It provides for the construction of new thermal-electric power stations, and the

expansion of the Razdanskaya GRES, where operations to active new units with a capacity of 300,000 kilowatts each have begun. However, it is well known that it is no simple matter to build stations, and therefore the builders have thought things out ahead of time about the high rates of construction—they ordered in various parts of the country the necessary structural elements and equipment in such a way that the first unit at the Razdanskaya GRES will be activated in 1991. But here too the blockade exerted its destructive effect and, practically speaking, it has threatened to make it impossible to meet the construction deadlines. Approximately 1500 tons of metal structurals continue to lie unshipped in Stavropol Kray. Equipment and various structurals have been stalled at plants in Donetsk Oblast and in other places. Therefore the activation of the first unit at the Razdanskaya GRES, which is planned for 1991, has been made very difficult.

A question that is very important is the question of converting the Armenian AES to a thermal-electric power station. The AES can no longer operate as a nuclear power station. By closing it, we have secured ourselves against any possible unpleasantnesses, but we are required to use its structures.

Unfortunately, in world practice there are almost no examples of conversions of AES. There is just one such example at a small station in France, and another in England. In this regard we care carrying out work with the participation of a number of union institutes, as well as foreign specialists, and that work may possibly yield results in the near future.

A factor that is taking on exceptionally great importance is the expansion of underground gas-storage facilities; the completion of the construction of a complex for the reduction and regasification of natural gas; the creation of new storage capacities for storing reserves of furnace oil; etc.

All this will provide the opportunity for a rather long period of time to be provided with fuel, despite the limited receipt of fuel from without.

On the whole, the program is very broad. Nevertheless, within the next two years we shall have to economize electrical power stringently. I must note that the question of economizing electrical power is exceptionally important. When, in 1977-1978, difficulties with energy supply arose in the United States, rigid measures were taken there to economize electrical power, and those measures yielded splendid results.

[R. Karageyan] But what effect did the shutdown of the Nairit NPO [scientific-production association] have upon the economizing of electrical power?

[Yu. Khodzhamiryan] You have now touched upon a question concerning two ends of a stick. On the one hand we definitely have a substantial economizing of power, and, on the other hand, the republic's power engineering has been put in a very complicated situation. As a result

of the closing of Nairit, the republic incurs large material expenditures—it is necessary to bring in from other parts of the country caustic soda, oxygen, and a number of chemical materials that are in extremely short supply but that are acutely necessary for the chemical water purification of thermal-electric power stations. You will agree that resolving such questions has been made extremely difficult, especially under the blockade conditions.

Obviously, it is necessary to work seriously on the problem of using the appropriate production capacities of the Nairit NPO, provided, of course, that they are absolutely safe for the environment.

[R. Karageyan] What is the situation with regard to the use of the so-called untraditional sources of power?

[Yu. Khodzhamiryan] In the program a definite place has been assigned to the use of untraditional current sources, such as the energy of the sun, the wind, and biomasses. Another question that is being considered is the use of geothermal energy.

As far as solar energy is concerned, there have been definite successes here, inasmuch as the Armenian Branch of the All-Union Scientific-Research Institute of Current Sources is in operation, and its collective has been cooperating with Yugoslav specialists.

We already have buildings that are heated by the sun. Substantial successes have also been achieved at the Yerevan University laboratory under the leadership of ArSSR Academy of Sciences Corresponding Member V. M. Arutyunyan. That laboratory has developed new effective semiconductor transformers. We intend to organize its joint operations with the Ashtarak Semiconductors Plant, as a result of which we expect to achieve success in creating solar energy transformers.

In the area of the use of solar energy, steps have been taken to study the experience gained by the leading foreign countries. For this purpose we have established contacts with them through the Armenian Diaspora and through other foreign institutions. Today the cost of one kilowatt of rated capacity at the best solar electric-power stations with phototransformers exceeds by a factor of 5-6 the cost of a kilowatt at thermal-electric power stations. But nevertheless this is an already admissible figure. Our republic, which has a sufficient scientific potential at its disposal, can successfully resolve this complicated problem.

Something else that is of interest in the development of wind power engineering. Definite work in using this type of wind power is being carried out at Yerevan Polytechnical Institute. Recently the Armenian Universal Philanthropic Organization presented the republic, by way of assistance, two wind generators. One has already been installed in Aragatskiy Rayon on the test grounds of Yerevan Polytechnical Institute, and the second one will be installed within the near future.

[R. Karagezyan] Incidentally, at one of the rallies in Yerevan it was mentioned that a certain Swedish company has offered its services in developing wind power engineering in Armenia, but the republic's government has been dragging out the resolution of the question. What can you say with regard to this?

[Yu. Khodzhamiryan] That is actually so. That was mentioned ArSSR Supreme Soviet Deputy A. Manucharyan, and there was also a deputy's inquiry by R. Kazaryan. And that's the way things stand. At our request, the republic has been visited twice by a representative from the Swedish company, Aramais Mirzakhanyan. He is a fellow countryman, and graduate of Yerevan Polytechnical Institute. He proposed to us that we install a series of wind generators. The idea consists in creating a test grounds, ascertaining which of the wind units is the optimal one under our conditions, and organizing their production in Armenia. This is, of course, a philanthropic act, inasmuch as it is proposed to invest part of the funds at the expense of foreign companies. However, a considerable amount in firmly convertible currency at the republic's expense will also be needed.

Unfortunately, we cannot allocate those funds at the present time, since we need the currency for more important purposes—the restoration operations in the earthquake zone and, in particular, the equipping of hospitals, clinics, rehabilitation centers, children's institutions, and individual production entities that are acutely needed for restoration purposes.

Therefore we see the way out for implementing the recommendations in the consideration of the possibilities of involving the cooperatives and other organizations in this job. That question has already been considered at the republic's Gosplan, and recommendations have been made for the makeup of the working group, drawing from representatives of the leading enterprises, departments, and organizations that are supposed to lead the work in this area and to give recommendations concerning the application of wind generators and their production in Armenian SSR.

I must remark that the use of wind generators requires careful consideration also from the point of view of the ecology. We know, for example, that in Florida, in the United States, a large number of "wind machines" were installed. As a result of their operation the birds and insects disappeared completely, and the environment was considerably damaged, so the action of the "wind machines" was discontinued.

Consequently, we too should think seriously about the place where the wind generators should be installed. Obviously, they could be used for summer pastures and for isolated agricultural projects.

[R. Karagezyan] But are there any other possible power sources, and to what degree can the untraditional sources correct the power balance in the republic within the next few years?

[Yu. Khodzhamiryan] Among the untraditional current sources, we are considering the question of using biomass for small-scale power consumers. Agropom is engaged in that problem. There are interesting ideas at Institute of Microbiology, ArSSR Academy of Sciences.

Something else that looks interesting is the use of geothermal energy. The republic has promising locations with increased temperature from strata lying close to the surface. Their broad use requires a large amount of water. This is, of course, a shortcoming, but it is necessary to engage seriously in the problem.

As for the substantial contribution made by untraditional power sources in the republic's power balance, this is, for the time being, extremely problematical.

In countries with the best-developed use of the energy in the sun, the wind, and other untraditional sources, their share in the power balance does not exceed one or two percent. If one assumes that we shall achieve that level, then for Armenia, where the required electric power consumption is approximately 13 billion kilowatt-hours a year, the one or two percent obtained from untraditional current sources will constitute approximately 130-260 million kilowatt-hours. This, naturally, is very little, and therefore we must continue to put the decisive emphasis on the traditional current sources.

[R. Karagezyan] What do you have in mind other than thermal-electric power stations?

[Yu. Khodzhamiryan] It is necessary to engage seriously in the question of using the energy in small rivers, and this has been stipulated in the republic's power program.

At one time Armenia produced the so-called micro-GES—the Yerevan Plant produced miniature electric-power stations. Then, when the country was seized by "giant fever," the country began building tremendous electric-power stations—the Volgogradskaya, Kuybyshevskaya, Krasnoyarskaya, and others—that killed the flora and fauna and that consigned the small GES to oblivion. In our republic, for example, the Gorisskaya, Aykatanskaya, Yekhegnadzorskaya, Yerevanskaya, and other small electric-power stations were eliminated. Many stations have been put in mothballs.

Meanwhile it is necessary to pay very serious attention to questions of creating even small hydroelectric power stations. And although, unfortunately, Armenia has a very small amount of hydroelectric resources, we must use them completely, but intelligently.

The construction of small hydroelectric power stations in rayons that are remote or relatively inaccessible has not only a direct benefit, but also an economic one: liquid fuel is economized in a large quantity and the transportation expenses are reduced. Their small reservoirs exert a favorable influence upon the environment. Fish can be raised in them, and it is possible to create recreational areas on the banks of the reservoirs.

According to specialists, it is possible to create in the republic more than 50 small GES with a capacity of approximately 165,000 kilowatt-hours.

[R. Karagezyan] We frequently hear the recommendations that, under the conditions of the power crisis, it might be a good idea to give up a few centimeters in the level of Lake Sevan in order to ease the situation. What do you think about this?

[Yu. Khodzhamiryan] We should not give up even a single millimeter of the level of Lake Sevan. The republic is carrying out a large amount of complicated work to raise the lake level. Certain successes, which so far are insignificant, have been achieved. We take the firm position that not a single drop of Sevan water should be released for the special purpose of meeting power-engineering needs, and the releases for land-reclamation purposes must be reduced with every passing year. For this purpose, many reservoirs, irrigation structures, and other projects are being built in the republic.

[R. Karagezyan] But what unused opportunities exist?

[Yu. Khodzhamiryan] The creation of storage-type hydroelectric power stations. A station of this kind was designed in our country long ago. Possible the location for it was chosen not completely successfully—its territory formed a slight wedge into the Khosrovskiy Preserve. Therefore the station was not built. But it must be admitted that if we currently had a storage-type hydroelectric power station, it would make it possible during the nighttime, when the Trans-Caucasian Power System has a surplus of power at its disposal, to pump water from the lower draining area to the upper one, and during the peak hours to use the energy in that water to produce electric power. I repeat: if we currently had that station, we would not be worried during the peak hours about whether television broadcasts have to be turned off.

The question of creating storage-type hydroelectric power stations has been included in our program, and it is necessary to resolve that question very rapidly and to achieve the construction of that extremely important project, having chosen, of course, the most suitable location.

On the whole, to conclude our conversation, I would like to say that within the next two years the situation with the republic power supply will be strained. Although new capacities will be introduced into the Trans-Caucasian Power System and, as we have this year, we shall receive a definite transfer of power, nevertheless it is necessary to carry out the strictest economizing measures. It is necessary, as the expression goes, to put in our belts another notch, especially during the winter. It is necessary to work carefully to resolve the questions of economizing electric power at every enterprise, in every city and village, in every home. What has been said applies in equal measure to the economizing of thermal power, gas, and all kinds of fuels.

I am convinced that our entire nation, all the workers in the republic, displaying the reasonableness that is typical of them, will take an understanding attitude toward this very important problem.

**The author has requested that the fee for this article be transferred to the fund to help the victims of the earthquake.**

#### **Yerevan Workers Concerned Over Nairit Works Closure Economic Impact**

*90US0475A Yerevan KOMMUNIST in Russian  
7 Jan 90 p 1*

[Armenpress article: "The Nairit Scientific-Production Association: Pro or Contra"]

[Text] According to the Decree of the Armenian Supreme Soviet of 25 June 1989 "On the Ecological State in the Republic and Measures to Further Improve It," as of 1 January 1990, the harmful types of production at the Nairit NPO [Scientific-Production Association] were halted. This decision was received with satisfaction by the public. However, recently the leading republic bodies have begun to receive letters and telegrams from the workers in which they, while correctly noting the correctness of the policy of improving the ecological situation in Yerevan and, in particular, the closing down of the Nairit NPO, at the same time express concern over the consequences of this, in their view, somewhat hurried step. They are concerned by the question of how the closing down of the association will be reflected on the republic economy at the threshold of converting all the Union republics to economic independence. Is it advisable precisely now to abandon this monopoly product which could become an important source of foreign exchange earnings for the republics? How would the closure of Nairit be reflected on the other enterprises using its products? Particular concern for the fate of the multithousand-strong collective has been expressed by the Nairit workers themselves and by the workers of other related enterprises in Yerevan.

The decision of the expanded session of the Labor Collective Council [STK] of the Nairit NPO signed by the Council Chairman, the USSR People's Deputy S. Usyan has pointed out that the cut-and-dried decision by the Armenian Supreme Soviet was taken in a dramatically tense time, without proper scientific back-up and without a realistic and objective assessment of the true ecological state of the enterprise and the area. The association did not conduct research on the ecological state with the participation of competent specialists. The Decree of the USSR Council of Ministers No. 1411 of 11 December 1987 has not been implemented and according to this the Armenian Ministry of Health in 1988 was instructed to conduct a medical examination of the employees at the Nairit NPO and on the basis of the obtained results, work out and implement the corresponding necessary health-protecting measures. Contrary to the decree, they still have not begun the

designing and creation of the association's sanitary zone and the other conditions of the decree have also not been carried out.

The STK of the association unanimously feels that at present there are real opportunities to put off the date for closing down production and restructure individual types of production for ecologically safe and waste-free production processes.

The decision of the STK of the Nairit NPO, in particular, points out that it is essential to conduct research at the NPO on the ecological state with the requisite involvement of skilled, competent specialists, including foreign ones, with the results to be publicized and widely debated in the mass information media with the corresponding objective commentary.

It has also been pointed out that the Decision of the USSR Council of Ministers No. 1411 of 11 December 1987 which instructs the Armenian Ministry of Health in 1988 to conduct a medical examination of the employees at the Nairit NPO has not been fully carried out. The Council demands the complete implementation of the decision of the USSR Council of Ministers and a resumption of the medical examination of the association's employees and the publicizing of the results.

The association's administration is confronted with the task, together with the Armenian Council of Ministers and the Republic Gosplan, within a 1-month period to work out proposals to restructure the association and resolve the social questions of the workers. The opinion of the labor collective without fail is to be taken into account in a discussion of the planning and executing of the work related to the restructuring.

The STK has raised the demand to fully consider the social consequences of closing down and restructuring production and to solve the questions of job placement, pension and housing security for the members of the Nairit collective. The collective feels that in carrying out essential measures to strengthen industrial safety and resolve the social needs of the Nairit workers, it is completely possible and advisable to shift the dates for closing down the production of chloroprene rubber.

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The decision of the labor collective of the Yerevan Vitamin Plant states:

From the 4th quarter of 1989 "with the help" of Azerbaijan, vitamin C production has been halted at our plant. Fixed capital totaling 5 million rubles has been halted as well as 200 employees on this production line. We have failed to produce 90 tons of vitamin C valued at 1.6 million rubles.

From 3 January 1990, due to the halt of the supply of nitrogen from the Nairit NPO, the plant has been completely shut down. Fixed capital valued at 15 million rubles and 650 plant employees have been idle. Each day we fail to produce vitamins valued at 110,000 rubles.

According to existing data, in the near future the town TETs is to be shut down and with a frost this will lead to the complete shutting down of the existing fixed capital valued at 15 million rubles.

As is known, a large number of plants in the republic is in an analogous situation.

Our collective feels that an improvement in the ecological state of Yerevan is a primary task. However, the achieving of this goal by destroying the republic economy is irrational.

This is the same thing as prohibiting the operation of motor transport in Yerevan as certainly 75-80 percent of the atmospheric pollution is created by the operating of motor transport.

We find that not only the Nairit NPO but also all production and facilities negatively influencing the ecology of Yerevan should halt their operations but this must be done reasonably, stage by stage, according to a state program, without violating the already ailing republic economy.

On the question of the Nairit NPO, we would propose halting the external production of liquid chlorine, reducing product output to a level ensuring a normal ecological state, taking all of the necessary measures to reduce the harmful discharges into the atmosphere, remove from Yerevan the ecologically polluting types of production over the next 3 or 4 years and ensure product output on the level of the republic's requirements.

We also propose that the republic leadership come forward with a full program to move ecologically harmful production out of Yerevan and restructure this, having organized a republic-wide discussion of the given question.

On behalf of the plant collective, the appeal was signed by the Director A. Ter-Stepanyan, the Party Buro Secretary F. Matevosyan, the Trade Union Committee Chairman M. Ambartsumyan and the STK Chairman S. Nersesyan.

#### Conversion of Semipalatinsk Test Site Urged

PM0404111990 Moscow KRASNAYA ZVEZDA  
in Russian 1 Apr 90 First Edition p 2

[Colonel A. Ladin interview with Kurchatov nuclear experts under the rubric "Focus on a Problem": "Nuclear Test Site and Conversion"—date of interviews not given]

[Text] There is heightened interest in the Semipalatinsk nuclear test site at the moment. Should nuclear explosions be carried out here or should the test site be moved to Novaya Zemlya—this is a question which is currently being discussed by various commissions, Kazakh SSR [Soviet Socialist Republic] scientists and public figures, the Ministry of Defense, the USSR Supreme Soviet

Committee for Defense and State Security Questions, the Committee for Questions of Ecology and Rational Use of Natural Resources, and the country's government... Careful expert assessments are needed before a final decision is made. This decision is being awaited with hope and trepidation by the inhabitants of Semipalatinsk and neighboring oblasts. And how do people who are directly connected with the work of the test site see its future?

A few days ago a delegation from Semipalatinsk Oblast's Kurchatov city visited Alma-Ata. I must explain for the uninitiated reader: Kurchatov is the now no longer secret city of the nuclear test site workers. It has a working population of some 12,000 people, its own party gorkom [city committee] and its own Soviet of People's Deputies. The chairman of the gorispolkom [soviet executive committee] is Yevgeniy Vladimirovich Chaykovskiy. He headed the city's delegation at a meeting with the leadership and aktiv of the "Nevada-Semipalatinsk" public movement.

After the meeting I talked with Ye. Chaykovskiy and also Candidate of Technical Sciences Colonel Lev Leonovich Nefedov, city soviet deputy, and Candidate of Technical Sciences Boris Vladimirovich Sorokin, party gorkom member and staffer of a science-and-production association joint expedition. Candidate of Physical and Mathematical Sciences Igor Valentinovich Kazachevskiy, head of a laboratory of the Kazakh SSR Academy of Sciences Nuclear Physics Institute, also took part in the conversation.

Ye. Chaykovskiy: Living and working in Kurchatov, where apart from the personnel directly employed at the test site quite a few other professions are also represented, has become increasingly uncomfortable of late. First, there is the mounting public pressure to end nuclear tests and, second, there are our internal problems which are growing more and more acute, above all those which are connected with the shortage of housing, children's and school establishments, jobs, food, and consumer goods.

The situation is further exacerbated as a result of the fact that a number of the site personnel previously involved in carrying out the tests are now out of work. Many of them are planning to leave the city. That means that we will lose the best scientific cadres. People are also leaving the city because at various rallies a barrage of irresponsible threats has been launched against our people. Who can put up with that? If everything that is being done at the test site is totally useless, as is being claimed at the rallies, why put up with deprivation and adversity? But if the work of the Kurchatov test site workers is nonetheless needed by the people, as is actually the case, then all those who are carrying out experimental research work at the test site or providing the backup must be able to lead normal human lives and have the necessary preconditions for scientific work and normal living conditions.

Correspondent: Have you raised these questions with anyone?

Ye. Chaykovskiy: Yes, at the last session of the city soviet an appeal to the USSR Supreme Soviet was adopted. USSR People's Deputy Colonel N. Petrushenko submitted it to the appropriate commission. This appeal also contains our proposals for the conversion of the test site.

Correspondent: What worries you most of all?

Ye. Chaykovskiy: The situation around the test site is such that the continuation of the tests appears to be out of question. The city soviet has proposed to the government that it declare another moratorium on nuclear explosions and embark on conversion of the test site.

Correspondent: So you favor a moratorium. And then?

Ye. Sorokin: We have serious proposals for reorienting the scientific laboratories and test site production facilities to the study of various national economic tasks and peaceful research. The situation at rallies has deteriorated to such extent that certain hotheads are suggesting that bulldozers be used to raze the site to the ground, without knowing what there is and what benefit the scientific base valued at billions of rubles could produce.

Correspondent: Maybe more information should be provided about work at the test site and its personnel. After all, it is not just explosions which are carried out there.

L. Nefedov: Of late our specialists have been frequently visiting the inhabitants of the surrounding population centers and meeting with Semipalatinsk working people. It is true that the preparation and implementation of underground nuclear tests account for only 30 percent of the total volume of scientific research carried out at the test site. Work in the interests of many ministries and departments is being carried out. For instance, the day after the tragedy in Chernobyl our specialists flew to the site of the accident. In all, some 50 people were there at various times. A system for monitoring changes in the concentration of aerosols in the near-earth layer of the atmosphere, developed by scientists at the test site, has been used at Chernobyl. Around the Chernobyl AES [nuclear electric power station] some 1,500 monitoring devices developed by scientists at the test site are currently in use. A major contribution to the elimination of the consequences of the accident was made by such specialists as Colonel N. Terekhov, Lieutenant Colonel S. Smagulov and A. Ilyash, and many others.

Correspondent: The more people know about work at the test site, the less frightened they will be and the less likely to believe rumors...

B. Sorokin: Naturally. This is why we have decided to initiate members of the leadership of the "Nevada-Semipalatinsk" public movement into some of our plans. For instance, Ye. Chaykovskiy recently had a conversation in Moscow with USSR People's Deputy O. Suleymanov. Now our delegation has taken part in

Alma-Ata in an enlarged session of the coordinating committee of this public organization. We read out our appeal to the USSR Supreme Soviet there. In addition, meetings with a number of scientists from the Kazakh SSR Academy of Sciences have been held. Cooperation contracts are being concluded.

Correspondent: You mentioned the conversion of the test site. Could you tell us in greater detail what the leadership and the collective of the test site are intending to do with a view to reorientating their activity?

L. Nefedov: The experience accumulated at the test site is essential not just for defense purposes. For instance, some 120 explosions have been carried out in the country in the interests of the national economy. Low-yield nuclear explosions have been used to extinguish major fires and also to relieve pressure in seams to assist miners. Scientists from Armenia used the facilities of the test site for a number of years to test structures' earthquake resistance. However, subsequently they discontinued their research. Kazakh scientists, on the other hand, are planning to conduct large-scale tests of new earthquake-resistant structures with our help. Japanese scientists are also interested in this work. We are able to create at the test site local conditions which closely simulate a real earthquake, both with the help of nuclear charges and with the use of conventional explosives.

B. Sorokin: At present research with a view to enhancing the safety of nuclear power stations is being conducted at the test site. It is necessary to take a realistic view of the future: No matter what anybody says, we will not be able to manage without nuclear power stations and without nuclear power engineering. While in our country people are still arguing about whether AES's should be built or not, abroad people are thinking about something else—how to enhance the safety of nuclear power generation installations. To give you an example, let me tell you that in France nuclear power stations produce 70 percent of all electricity, in the FRG 30 percent, and in Japan, which has experienced the horror of the nuclear holocaust, nuclear power stations supply 25 percent of electricity. In the Soviet Union they account for only 12 percent of electricity output. We cannot stand still in the development of nuclear power engineering. We are proposing that the scientific base of the test site be utilized and an experimental research center be set up there to investigate nuclear power engineering installation safety problems...

I. Kazachevskiy: All the preconditions for intensive research in the sphere of physics and technical sciences exist at the test site. I would like to say that our academic institute is interested in cooperation with the scientists at the test site with a view to developing the latest technologies for the production of superpure metals. As is known, these are needed in various sectors of industry, and especially the electronics industry.

B. Sorokin: We are not just talking about conversion, to some extent we are already working on it. For instance,

computer technology and automation experts have concluded a contract with the ferroalloy plant in Yermak (Kazakh SSR) for the development of an automated control system for technological processes and also a diagnostic system to monitor processes taking place in smelting furnaces. The cost of this work totals R1 million. A package of applied programs is being compiled for the Irtysh Shipping Line which will make it possible to optimize shipping schedules, establish order in the settlement of accounts with clients, and automate the compilation of all kinds of documentation.

Our production facilities are supplying various enterprises and medical establishments in Semipalatinsk Oblast with liquid nitrogen and liquid and gas oxygen. Sprinkling equipment is being repaired in our workshops. Cooperation is being developed with the "Altay-zoloto" mining and enrichment combine.

Ye. Chaykovskiy: There are also other examples. For instance, the provision of all kind of consumer services for the population of Semipalatinsk Oblast has already been organized in our production subdivisions. Reconstruction of workshops is under way and when it is completed we will start producing assemblies and components for the dairy, canning, and wine-making industry. In our carpentry shops production of school furniture is being organized. The oblast is providing the timber.

The city soviet is taking steps to transform Kurchatov into an increasingly modern major scientific center. However, as yet we have many problems.

We firmly believe that all departments in whose interests the test site's scientific base is being use must make their contribution to the provision of amenities in the city and the construction of housing and sociocultural and medical facilities.

We are deeply concerned for the future of Kurchatov, our city, and our entire region. We want to draw attention to our problems in good time. We have raised the question of the test site's conversion because we are aware that this process must take place on the basis of precise computations and plans. We believe that conversion could be of considerable benefit both for the republic and the country as a whole.

#### **Uzbek Minvodkhoz Minister on Water Resource Development, Ecology**

90US0581B Tashkent *PRAVDA VOSTOKA* in Russian  
28 Jan 90 p 2

[Interview with R. A. Giniyatullin, Minister of Land Reclamation and Water Management, by UzTAG correspondent A. Bezverkhov: "Topical Interview: Minvodkhoz: Not an Enemy, But an Assistant"]

[Text] The Ministry of Land Reclamation and Water Management [Minvodkhoz] has been restored in Uzbekistan. UzTAG correspondent A. Bezverkhov discusses its tasks, strategy, and tactics with Minister R. A. Giniyatullin.

[A. Bezverkhov] Rim Abdulovich, would you please allow me, first of all, to introduce you to our readers. Because frequently we do not know anything about the administrators of our republic's ministries and departments except their names.

[R. Giniyatullin] I would be pleased to do so. I am 47 years old. By education I am a hydraulic engineer. Since 1965 I have worked in the republic's water management system. Practically all my conscious work has been inseparable from that collective, where I was nurtured to the position of deputy minister. In 1986 I was appointed deputy chairman of UzSSR Gosplan, and then first deputy chairman of UzSSR Gosagroprom [State Agroindustrial Industry]. And now I am here again.

[A. Bezverkhov] In a word, you do not have just a hearsay knowledge of the work done by the water management people. Obviously, you have a better understanding also of the problems of agriculture. Because the agrarian specialists are the best partners of the land reclamation workers. May I assume that this influences the activities of the Minvodkhoz subdivisions?

[R. Giniyatullin] I would not say "partners." It would be more correct to call them members of the same agrobrigade, or agroshop, in the broad sense. In any instance, that is how it must be. So far the actions of the water management specialists and the farmers have not always been intercoordinated. We may as well confess that an idea that has become firmly entrenched in the mind of many irrigation specialists is: once we have provided the water, our job is done, and then it is a job for the farm.

But we cannot continue working like that. The water shortage is the same for everyone. So our common goal is to achieve the intelligent and effective use of natural resources—the land and water. This is a single task that cannot be divided into parts. Worldwide practice, as well as our own experience, has shown that the maintaining of the land's economic potential can be resolved only in a comprehensive manner. At such time practically the most important task is the carrying out of land reclamation measures.

Currently in Japan and the United States, the operational and other expenditures per hectare of plowed land annually come to approximately \$3000. The maintaining of the land's working condition costs that much. Because this is a complicated living organism. And it necessary constantly to carry out preventive work, to cure the land of its disease immediately. Otherwise it will cost us tens of times more in the future. Unfortunately, today we cannot invest more than 100-300 rubles per hectare. Therefore, the efficient use of each piece of plowland is an extreme necessity.

Today in Uzbekistan more than 2 million hectares out of 4 million contain less than one percent of humus. But we need two or three percent. The land has been exhausted: approximately 400,000 hectares annually produce roughly from 6 to 15 quintals of cotton. Our plowland urgently needs treatment everywhere. But for the time being, because of the limitation of funds, we are obliged to help at least the most difficult plots.

[A. Bezverkhov] But doesn't the republic have a program for the comprehensive remodeling of the old plowed areas? Is there something in the implementation of that program that doesn't satisfy you?

[R. Giniyatullin] There are several important factors here. First of all, the work has been proceeding basically at the interfarm structures and systems, separately from the intrafarm ones, where the work must be carried out by the kolkhozes and sovkhozes themselves. But they usually do not have any funds. Therefore, if we want to improve the rate of results, it is necessary to go to the aid of the farms.

Furthermore, it is necessary to approach each field individually. In our republic today approximately 700,000 hectares are in the initial stage of deterioration and require not so much improvement, as steps to stop the decrease in fertility. But even these steps require expenditures, but we keep trying to save money: as the expression goes, so long as it's alive, it can wait. But later on we will have to expend not only more money, but also more efforts.

Today in Surkhan-Darya Oblast, the Fergana Valley, and Tashkent and Bukhara oblasts there are farms with a cotton harvest yield of 23-25 quintals. That is the average level for the republic, but it is lower than the average indicator for the rayon or oblast. And it for that reason that that land can be considered to be in a bad condition from the point of view of land reclamation. Work must be done with that land, but it is possible that the work there will not have to include the entire set of measures when 4000-6000 rubles are invested in each hectare.

In this instance it would be better to channel the funds and efforts into the actually sick plots of land. Of course, there is also a problem here: such fields are usually small and not concentrated. But even those fields have to be restored. For the time being, however, we have been carrying out the comprehensive improvement of the irrigated plowland on large-sized areas that encompass all the land, including the fertile areas. This is at a time when a half-million hectares of actually sick land is awaiting land reclamation specialists.

It is also necessary to take another factor into consideration: annually the branch is allocated an amount of the order of 650 million rubles for construction-and-installation operations. Of that amount, more than 250 million rubles are used for communal-housing construction and the erecting of structures for social, cultural, and everyday services. And approximately 400

million rubles go into land reclamation operations that are directly linked with the land. That amount also includes the comprehensive assimilation of new land areas. With rates such as this, we will be able to carry out the reconstruction of our land fund, at best, in 50 years.

[A. Bezverkhov] But what is being proposed to increase the effectiveness of the operations?

[R. Ginyatullin] First of all, we must establish firm contacts with the farms. The farmers are the people who know the state of their land best. They know what has to be done, and where, first of all. At such time there will not always be a need specifically for land reclamation operations. For example, we might make this kind of "diagnosis": the yield from the plowland is small because... there is no one to work the fields. Then we shall build schools, kindergartens, clinics, and housing.

In the outlying areas it is necessary to determine and approve a plan for the operations as a whole—from the construction plan to implementation. We feel that the operations should be carried out without taking the land out of agricultural circulation, but instead should be done during the periods between vegetative processes. Otherwise large-sized areas of land will be "sitting idle" annually.

And there is something else: every year it is necessary to channel no less than 300 million rubles into direct land reclamation measures. Of that amount, 40 percent has to be spent to repair and build the intrafarm systems. In order to do this, subdivisions to work on the farms themselves must be activated in the Minvodkhoz system.

[A. Bezverkhov] Rim Abdulovich, soon the experiment involving payment for water use will be two years old. Large hopes were placed on that experiment. How do things stand today? What are the prospects?

[R. Ginyatullin] There are a lot of complicated questions here, for which the economists and scientists do not yet have any clear or unambiguous answer. Last year the experiment was conducted in 13 rayons in the republic. In 1990 no new rayons will be added. But we are not putting the work "in mothballs." It will be carried out in greater depth. Simultaneously all the republic's irrigation systems are being checked and being prepared for the conditions of water-resource record-keeping. So that, at any moment—irrespective of whether payment for water has been introduced—the system will be ready.

The work experience that we have accumulated with regard to "paid" water poses more and more questions. For example, even in the example of one rayon, there is a different land potential, a different water quality, a different reliability in supplying the water. Correspondingly, the productivity of the water is dissimilar. So how does one determine the price?

When should the farms pay for the water—after the harvest has been brought in or immediately, like electric power?

Where do the wages paid to the operational workers come from, if, for some reason, the farms have not paid the money?

How does one take into consideration the water that has been collected by thousands of mobile pumping stations? What about the water collected from the water-collection and drainage network, or the water used for the private plots?

What if the farm does not want to accept the water that has been planned for it, so that the water flows into the Aral Sea? To whom is the bill submitted?

Moreover, the current system of payment for water does not encourage the farmers to economize. For example, if one cubic meter of water costs one kopeck, then a saving of 1000 cubic meters will make it possible to save 10 rubles. But in order to achieve this, the farm must spend 500 rubles.

These are not rhetorical questions. But so far they have not been resolved. Therefore we decided to form a special collective out of scientists and experienced specialists in practical applications to work in this area.

[A. Bezverkhov] You mentioned the Aral Sea. Nowadays we cannot ignore that topic. What is your opinion on the problem?

[R. Ginyatullin] Some people see it in an oversimplified way: if we fill up the sea with water, everything will be all right. That view is primitive and even dangerous. We must look at the entire set of problems.

At the present time, approximately 30 cubic kilometers of moisture evaporates from the total surface of the Aral Sea. Previously, 45 cubic kilometers used to evaporate, and today all of Uzbekistan collects 50 cubic kilometers. Therefore even if 20-21 cubic kilometers of water are fed into the sea, the level of the sea will still drop, on the minimum, by 7 meters from today's level. Those are objective conclusions made by scientists and specialists. Therefore it is time for all of us to stop leveling accusations at one another and to begin looking for constructive resolutions of the problem.

I also would like very much to see the level of the Aral Sea rise and I am not opposed to providing additional water to the sea. But it is also necessary to remember the chief task that was stated in the decree issued by CPSU Central Committee and USSR Council of Ministers: the improvement of the ecological and sanitation situation in the area of the Aral Sea, and the providing of assistance to region residents in resolving their social and economic problems. This is a realistic program and it must be resolved.

Today it is considered possible to save 10 cubic kilometers of fresh water for the sea. But the price of that saving

is 25 billion rubles. Where is that money to come from, if half the republic's population has income that is below the subsistence level, and the basic source of livelihood for the rural population—the land being irrigated—is decreasing? Yes, the Aral Sea needs water. But so do the 700,000 people who are born annually in the republic.

I think that, in this regard, we could use some of the economized water to irrigate additional areas of land. That would be approximately one million hectares. We should not forget the population that is rapidly growing in Central Asia and Southern Kazakhstan. By the year 2000 that population will grow to 50 million. It will be necessary to find jobs and food for them. But even today the per-capita consumption of food products in our republics is below the average for the country.

And yet an additional million hectares is the opportunity to produce within the next ten years additional products from vegetable husbandry with a total value of 7-10 million rubles. It is necessary to consider all of this very carefully.

Finally, it is necessary to decide in a businesslike manner, without any emotions, how the millions of persons living in this part of the country will continue to live, and what they can count on. We would like very much for our "accusers" to tell us specifically what must be done. Or will it be necessary, after all, to return to what is being done throughout the world—to transfer resources from areas in which they are plentiful to an area where they are in short supply? That is, to return to the problem of the Siberian water?

[A. Bezverkhov] The next question is about the ministry itself. In the autumn of 1988 it was disbanded. Then, exactly a year later, it was formed again. How can one explain this?

[R. Giniyatullin] At that time it was not just Minvodkhoz that was disbanded, but also other departments and even rayons and oblasts. Personally I was against it and I said so openly. But I do not want to emphasize this—life itself has confirmed the undesirability of such "shakeups." And currently it not only our ministry that has been restored.

In principle, its tasks remain unchanged, and it is not necessary to invent anything. The basic trends in which the water management workers operate have been developed over the decades. But their work must be improved.

Unlike the previous ministry, the apparatus has been reduced—from 540 persons to 300. Most of them are new workers. They have all come from production jobs, from various oblasts in the republic. But, most importantly, they are energetic people, who know the problems of the branch and who are really "gung-ho."

The work of the production subdivisions and the industry, on the whole, is to our liking. Rich experience has been accumulated and a powerful base has been

created. The adjustments will be only in the direction of increasing the production of consumer goods. We shall activate all our available capacities. But the activities of the construction-design institutes will have to be reconsidered. Our construction designers are working in complete isolation from the specific land areas and farms. The designs do not take into consideration the real peculiarities of the terrain and supervision over the originator's plans is being carried out weakly. There are other complaints. But we shall correct the situation.

This is also necessary because we want to restore the prestige of the water management specialists. At the present time we have found ourselves in the role of the accused. The entire job performed by irrigators for many years is being presented only in a negative way. Are we really supposed to be answerable for the fate of the Aral Sea? Are we really guilty of the merciless exploitation of the land and the ecological imbalance?

No one will recall that half the population of Uzbekistan is living on reclaimed land. They have built cities and settlements, roads, electrical-transmission and communication lines, canals and antiflood structures... The experience of the irrigators of Uzbekistan is being studied throughout the world.

At the same time the farms, the industrial enterprises, and the inhabited places are using the water carelessly and polluting it. For example, as much as 40 percent of the fertilizers are washed off the fields and into the rivers. And industrial runoff continues. How does one evaluate this kind of "contribution"?

Without a doubt, we have had our miscalculations. But the republic's water management specialists also have something to be proud of. I am convinced that we will also do a beneficial job in the future. And I say this in the name of the thousands of people who have devoted their lives to water management.

#### Initial Tajik Goskompriroda Performance Termed Inadequate

90US0712A Dushanbe KOMMUNIST  
TADZHIKISTANA in Russian 26 Feb 90 p 3

[Article by L. Serebrennikov: "The Issues Were Discussed: Will There Be Action?"]

[Text] The essence of the Tajik SSR State Committee for the Protection of Nature, its goals and its tasks are reflected in the very name. Established a year ago, the committee has become a central agency of state control in the area of environmental protection and the prudent use of natural resources. The committee now numbers almost 300 specialists in various fields, and a million rubles is allocated for its yearly support.

During last year's intensive monitoring and inspection work Goskompriroda subdivisions inspected 3,367 facilities and enterprises in the republic. They revealed 883 violations of environmental protection laws, for which it

was recommended that bonuses be withheld from directors and other officials at such enterprises as the Tadzhiksetment and Tadzhiktekstilmash associations, the Tadzhik Aluminum Plant, the Dushanbe Fittings Plant and the Inzhdorremstroy Trust site. There have been more than 300 enactments ordering the temporary halting or shutdown of operations at shops, factories and production units. Fines have been levied totalling tens of thousands of rubles.

Goskompriroda specialists have prepared environmental protection programs, a statute on interaction with republic ministries and departments, standardized fines for polluting the environment and payment for the use of natural resources. Work has been started on a unified scientific and technical policy based on the specific features of the republic's environment.

At the same time there is serious concern about the fact that republic enterprises and organizations systematically fail to carry out environmental protection measures and about the inability of rayon, city and oblast environmental protection committees and specialists with the state committee itself effectively to pressure the negligent managers. This accounts to a significant degree for the fact that high concentrations of gas and dust, runoff of inadequately purified waste water into the rivers and over-saturation of the ground with nitrates and toxic chemicals are registered almost universally in republic cities.

All components of Goskompriroda have an acute shortage of transport and mobile laboratories and are poorly provided with equipment and supplies. The committee's central organization is slow in restructuring its work style and does to little to influence the performance of its subdivisions.

These and other problems were discussed at an enlarged session of the collegium of the Tajik SSR Goskompriroda. Taking part in it were heads of rayon, city and oblast environmental protection committees, representatives of the republic's community concerned with ecology, leaders of ministries and departments and scientists.

A plan for protecting the environment of the Tajik SSR was approved and will be submitted to the Tajik SSR Supreme Soviet. An appeal was approved in which Goskompriroda workers call upon all residents of the republic to become actively involved in the improvement of the human habitat.

### Tajikistan 1989 Environmental Statistics Summarized

90US0712B Dushanbe KOMMUNIST  
TADZHIKISTANA in Russian 26 Feb 90 p 3

[Information from Tajik SSR State Committee for Statistics: "Justice Has Prevailed by Only 0.3 Percent With Respect to Individuals and Organizations Harming the Environment"]

[Text] Despite steps taken in the republic to improve the ecological situation, it is still not good in a number of places.

One of the main reasons is that associations, enterprises, organizations, kolkhozes and sovkhozes are not making full use of the funds allocated for environmental protection measures. In 1989, for example, TadAZ used 185,000 (62 per cent) of the 300,000 rubles allocated; the Vakhsh Nitrogenous Fertilizer Plant, 65 per cent of its allocations.

Although the discharge of harmful substances into the air from fixed sources was reduced by 22,000 tons from the 1988 level, a high level of air pollution is still found in the cities of Kurgan Tyube, Kalininabad, Dushanbe and Tursunzade, in some cases exceeding the maximum permissible levels by a factor of 4 or more.

There is dangerous contamination of surface water by waste from industrial enterprises and livestock complexes and the runoff from irrigated fields. Underground water is being used up and contaminated. The area of soil damaged by erosion is increasing.

Emergency rapid discharges are having a serious negative effect upon the environment. Two cases of pollution of water works were registered in 1989 at the Anzob Ore Concentration Combine, where 2,000 cubic meters of sewage was dumped into the Dzhizhikrut and Anzob rivers daily.

A dam broke at the holding pond of the sewage treatment plant for the settlement of Sebiston in November of 1989, sending 1,200 cubic meters of waste water into Sargazon Creek and on into the Tairsa River. The dam broke through the fault of the Dangaravodstroy trust, which had built installations with deviations from the design and placed them into use without the approval of water monitoring agencies. The damage amounted to 27,700 rubles.

A total of 1,196 people have been disciplined administratively and 13 have been held criminally liable for violations of environmental protection laws.

Only 35,000 rubles, or 0.3 per cent, of the 12,079,700 rubles of fines assessed for damaging the environment has been collected.

Because of this, steps have been taken to halt the operation of a number of enterprises such as the sintering shop of the Dushanbe Construction Materials Production Association—for 54 days; the plaster shop of the Isfara Construction Materials Production Association, for 43 days; the asphalt and concrete plant of the Inzhdorremstroy trust, for 14 days; and a number of other facilities, shops and units.

## NORWAY

### Residue Attributed to Soviet Industrial Pollutants

90P20011 Oslo ARBEIDERBLADET in Norwegian  
3 Mar 90 p 8

[Article by Gry Engegretsen Isberg: "Fear of Sulfur Fallout from the USSR"; first paragraph is ARBEIDERBLADET introduction]

[Text] Lakselv: Gro Storhaug Jensen and her daughter, Mona, of Lakselv experienced somewhat of a shock on Thursday. After a night of terrible weather, they woke up and found the house covered with dark brown spots.

"We thought immediately of the pollution in the East, and were afraid that this could be fallout from the nickel plant or the nuclear plant on the Kola Peninsula," says Gro Storhaug Jensen to the FINNMARK DAGBLAD.

"It can really be true that this is pollution from the nickel plant which is coloring the house in Lakselv brown and yellow," says state meteorologist Sjur Wergeland of the Weather Bureau in Tromso.

"We have had wind from the direction which would facilitate transportation of pollution from the Kola Peninsula across long distances," he said.

### Brown-Yellow Spots

It is not only the Storhaug Jensen family which has noticed brown spots on the house walls after the storm on Wednesday evening and night. On Thursday homeowners over the whole of Lakselv discovered a noticeable film on house walls as well as on the snow.

"It was the children who first discovered that the one wall was almost completely covered with yellow-brown spots. This was a very frightening sight. I have never seen anything similar during the 20 years I have lived in Lakselv. We are situated, after all, a good distance from the industrial area in the north of the Soviet Union," says Gro Shorhaug Hensen.

### Feels Afraid

"To feel afraid of something that one cannot identify is a human reaction. We who live in Finnmark know very little about what goes on in our Soviet neighborland."

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